



UNIVERSITAT
POLITÈCNICA
DE VALÈNCIA



ETS INGENIEROS DE CAMINOS,
CANALES Y PUERTOS

ANEJO 2

MEDICIONES DEL ESTUDIO DE SOLUCIONES

Estudio de mejora del enlace de la V-23, en su P.K. 4+200,
con la A-23 y la N-340, en el municipio de Sagunt (València)

Presentado por

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Para la obtención del

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MODELO SIMPLIFICADO ALTERNATIVA ALT5-C3 - MOVIMIENTO DE TIERRAS (Carretera compuesta 14)

P.K. (m)	Desmonte (m³)	Área de desmonte (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmonte acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	85.953	0	0	0	0	0	0 Inicio: intersección
27.287	909.542	54.612	0	0	909.542	0	909.542	Final: intersección
40	575.599	35.942	0	0	1485.141	0	1485.141	
60	360.528	0.11	16.002	1.6	1845.669	16.002	1829.666	
80	1.104	0	295.094	27.909	1846.772	311.096	1535.677	
100	0	0	640.362	36.127	1846.772	951.457	895.315	
120	0	0	763.464	40.219	1846.772	1714.922	131.851	
140	0	0	678.417	27.622	1846.772	2393.339	-546.567	
160	0	0	578.484	30.226	1846.772	2971.823	-1125.05	
180	0	0	585.147	28.289	1846.772	3556.97	-1710.197	
200	0	0	556.462	27.358	1846.772	4113.431	-2266.659	
203.238	0	0	92.496	29.781	1846.772	4205.927	-2359.155	
220	0	0	612.172	43.26	1846.772	4818.099	-2971.327	
225.738	0	0	263.702	48.66	1846.772	5081.801	-3235.029	
240	0	0	788.252	61.876	1846.772	5870.054	-4023.281	
240.738	0	0	45.902	62.584	1846.772	5915.955	-4069.183	
255.738	0	0	1036.048	75.556	1846.772	6952.003	-5105.23	
260	0	0	326.775	77.774	1846.772	7278.778	-5432.005	
267.605	0	0	602.739	80.729	1846.772	7881.517	-6034.745	
280	0	0	1011.548	82.495	1846.772	8893.065	-7046.292	
282.605	0	0	215.165	82.673	1846.772	9108.23	-7261.458	
297.605	0	0	1247.677	83.684	1846.772	10355.907	-8509.135	
300	0	0	201.183	84.347	1846.772	10557.09	-8710.318	
320	0	0	1842.083	99.861	1846.772	12399.173	-10552.4	
320.105	0	0	10.532	99.96	1846.772	12409.704	-10562.932	
340	0	0	2256.978	126.934	1846.772	14666.683	-12819.91	
360	0	0	2752.075	148.274	1846.772	17418.758	-15571.985	
380	0	0	3084.507	160.177	1846.772	20503.265	-18656.493	
383.354	0	0	541.988	163.025	1846.772	21045.253	-19198.481	Inicio: intersección
428.367	0	0	6277.314	113.017	1846.772	27322.567	-25475.794	Final: intersección
440	0	0	1259.922	103.59	1846.772	28582.489	-26735.717	
460	0	0	2094.452	105.855	1846.772	30676.942	-28830.169	
480	0	0	2287.05	122.85	1846.772	32963.992	-31117.22	
500	0	0	2830.307	160.181	1846.772	35794.299	-33947.527	
520	0	0	3296.151	169.434	1846.772	39090.45	-37243.678	
540	0	0	3209.231	151.489	1846.772	42299.681	-40452.909	
560	0	0	2747.261	123.237	1846.772	45046.942	-43200.169	
580	0	0	2197.46	96.509	1846.772	47244.402	-45397.629	
600	0	0	1761.669	79.658	1846.772	49006.071	-47159.298	
620	0	0	1500.61	70.403	1846.772	50506.681	-48659.909	
640	0	0	1468.552	76.452	1846.772	51975.233	-50128.461	
660	0	0	1460.791	69.627	1846.772	53436.025	-51589.252	
680	0	0	1569.067	87.28	1846.772	55005.092	-53158.32	
700	0	0	1755.937	88.314	1846.772	56761.029	-54914.257	
712.874	0	0	1203.32	98.631	1846.772	57964.35	-56117.577	
720	0	0	715.028	102.038	1846.772	58679.378	-56832.605	
735.731	0	0	1507.969	89.685	1846.772	60187.347	-58340.574	
740	0	0	368.653	83.014	1846.772	60555.999	-58709.227	
750.969	0	0	786.825	60.453	1846.772	61342.825	-59496.052	
760	0	0	469.447	43.508	1846.772	61812.272	-59965.499	
766.207	0	0	251.278	37.459	1846.772	62063.55	-60216.778	
766.969	0	0	28.252	36.702	1846.772	62091.802	-60245.03	
780	0	0	406.656	25.71	1846.772	62498.458	-60651.685	
800	0	0	336.999	7.99	1846.772	62835.456	-60988.684	
819.175	0	0	137.291	6.33	1846.772	62972.748	-61125.975	
819.937	0	0	4.913	6.568	1846.772	62977.661	-61130.889	
820	0	0	0.412	6.583	1846.772	62978.073	-61131.301	
835.175	0	0	127.422	10.21	1846.772	63105.495	-61258.722	
840	0	0	51.542	11.156	1846.772	63157.036	-61310.264	
850.414	0	0	126.421	13.124	1846.772	63283.458	-61436.685	
860	0	0	118.952	11.692	1846.772	63402.409	-61555.637	
873.271	0	0	142.46	9.778	1846.772	63544.87	-61698.097	
880	0	0	62.816	8.892	1846.772	63607.685	-61760.913	
887.914	0	0	66.321	7.868	1846.772	63674.006	-61827.234	Inicio: intersección
908.829	182.682	0	14.588	5.255	2029.454	63688.595	-61659.141	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT5-C3 - MOVIMIENTO DE TIERRAS (Carretera compuesta 16)

P.K. (m)	Desmonte (m³)	Área de desmonte (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmonte acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
914	2618.196594	159.404335	41441.70076	2692.352263	2618.196594	41441.70076	-38823.50417	Aproximación

MODELO SIMPLIFICADO ALTERNATIVA ALT5-C3 - MOVIMIENTO DE TIERRAS (Carretera compuesta 17)

P.K. (m)	Desmonte (m³)	Área de desmonte (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmonte acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	12.269	0	0	0	0	0	
20	241.105	11.841	0	0	241.105	0	241.105	
24.843	54.197	10.542	0.019	0.008	295.302	0.019	295.284	
40	144.316	8.501	21.669	2.852	439.619	21.688	417.931	
56.629	95.942	3.039	141.437	14.16	535.56	163.125	372.436	
60	8.653	2.095	52.787	17.154	544.213	215.912	328.302	
80	20.946	0	451.159	27.962	565.16	667.071	-101.911	
81.609	0	0	44.757	27.658	565.16	711.827	-146.668	
100	0	0	500.253	26.745	565.16	1212.081	-646.921	
120	0	0	540.923	27.347	565.16	1753.004	-1187.844	
128.054	0	0	223.926	28.261	565.16	1976.929	-1411.77	
140	0	0	344.903	29.481	565.16	2321.833	-1756.673	
160	0	0	625.716	33.09	565.16	2947.549	-2382.389	
160.768	0	0	25.471	33.281	565.16	2973.02	-2407.86	Inicio: intersección
247.256	0.778	0	3518.618	56.417	565.937	6491.638	-5925.701	Final: intersección
260	0	0	852.02	77.296	565.937	7343.658	-6777.721	
280	0	0	1886.77	111.381	565.937	9230.428	-8664.491	
300	0	0	2617.224	150.341	565.937	11847.653	-11281.716	
312.139	0	0	1963.47	173.156	565.937	13811.123	-13245.186	
320	0	0	1378.818	177.645	565.937	15189.941	-14624.004	
340	0	0	3492.605	171.616	565.937	18682.546	-18116.609	
346.639	0	0	1117.41	165.003	565.937	19799.956	-19234.019	
360	0	0	2071.582	145.092	565.937	21871.539	-21305.601	
369.639	0	0	1324.309	129.689	565.937	23195.847	-22629.91	
380	0	0	1260.748	113.676	565.937	24456.596	-23890.658	
392.639	0	0	1354.684	100.689	565.937	25811.279	-25245.342	
400	0	0	709.336	92.04	565.937	26520.615	-25954.678	
420	0	0	1689.817	76.942	565.937	28210.432	-27644.494	
433.036	0	0	967.612	71.506	565.937	29178.043	-28612.106	Inicio: intersección
445.514	0	0	270.775	51.74	565.937	29448.819	-28882.881	Final: intersección
457.036	0	0	614.509	54.932	565.937	30063.327	-29497.39	
460	0	0	164.017	55.733	565.937	30227.344	-29661.407	
480	0	0	1163.477	60.614	565.937	31390.821	-30824.884	
480.036	0	0	2.171	60.624	565.937	31392.992	-30827.055	
500	0	0	1220.682	61.663	565.937	32613.674	-32047.737	
509.596	0	0	580.982	59.428	565.937	33194.656	-32628.719	Inicio: intersección
571.731	0	0	2870.188	42.745	565.937	36064.844	-35498.907	Final: intersección
580	0	0	357.184	43.645	565.937	36422.028	-35856.09	
600	0	0	942.996	50.655	565.937	37365.024	-36799.086	
620	0	0	1156.068	64.952	565.937	38521.092	-37955.155	
640	0	0	1418.944	76.942	565.937	39940.036	-39374.098	
660	0	0	1604.046	83.462	565.937	41544.081	-40978.144	
666.081	0	0	501.876	81.614	565.937	42045.957	-41480.02	Inicio: puente
721.069	0	0	0	33.408	565.937	42045.957	-41480.02	Final: puente
740	0	0	559.564	25.708	565.937	42605.522	-42039.584	
751.442	0	0	260.43	19.815	565.937	42865.951	-42300.014	Inicio: intersección
781.441	9.864	6.245	289.474	0	575.802	43155.425	-42579.623	Final: intersección
800	179.393	13.088	0	0	755.194	43155.425	-42400.231	
820	296.538	16.566	0	0	1051.732	43155.425	-42103.693	
840	305.877	14.022	0	0	1357.609	43155.425	-41797.815	
860	201.475	6.126	0	0	1559.085	43155.425	-41596.34	
880	61.26	0	107.551	10.755	1620.344	43262.976	-41642.632	
884.281	0	0	55.554	15.2	1620.344	43318.53	-41698.185	
900	0	0	396.368	35.23	1620.344	43714.898	-42094.553	
920	0	0	956.473	60.417	1620.344	44671.371	-43051.026	
940	0	0	1290.256	68.609	1620.344	45961.626	-44341.282	
960	0	0	1116.336	43.025	1620.344	47077.963	-45457.618	
980	0	0	506.434	7.618	1620.344	47584.397	-45964.052	
1000	64.5	6.45	76.183	0	1684.844	47660.58	-45975.735	
1014.226	139.369	13.144	0	0	1824.213	47660.58	-45836.366	
1020	83.155	15.657	0	0	1907.368	47660.58	-45753.211	
1040	377.612	22.104	0	0	2284.981	47660.58	-45375.599	
1060	456.465	23.543	0	0	2741.445	47660.58	-44919.134	
1080	462.965	22.754	0	0	3204.41	47660.58	-44456.17	
1100	353.757	12.622	0	0	3558.167	47660.58	-44102.412	
1120	159.016	3.28	0.26	0.026	3717.183	47660.839	-43943.656	
1131.712	34.042	2.533	0.238	0.015	3751.225	47661.077	-43909.853	
1140	18.466	1.923	0.149	0.021	3769.69	47661.226	-43891.536	
1141.721	3.219	1.818	0.037	0.022	3772.909	47661.263	-43888.354	
1156.113	16.937	0.535	10.4	1.423	3789.846	47671.664	-43881.817	
1160	1.787	0.384	5.976	1.652	3791.634	47677.64	-43886.006	
1180	3.843	0	119.055	10.254	3795.477	47796.696	-44001.218	
1200	0	0	598.864	49.633	3795.477	48395.56	-44600.083	
1202.903	0	0	150.228	53.871	3795.477	48545.788	-44750.311	
1220	0	0	1080.927	72.575	3795.477	49626.715	-45831.238	
1240	0	0	1659.722	93.398	3795.477	51286.437	-47490.96	
1246.812	0	0	659.154	100.128	3795.477	51945.591	-48150.114	Inicio: intersección
1264.11	0	0	1460.5	93.408	3795.477	53406.091	-49610.614	Final: intersección
1265.697	0	0	148.197	93.304	3795.477	53554.288	-49758.811	Inicio: intersección
1324.983	0	0	6521.805	84.225	3795.477	60076.093	-56280.616	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT5-C3 - MOVIMIENTO DE TIERRAS (Carretera compuesta 28)

P.K. (m)	Desmorte (m³)	Área de desmorte (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmorte acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	0	0	0	74.692	0	0	0 Inicio: intersección
18.676	0	0	1460.5	90.887	0	1460.5	-1460.5	Final: intersección
20	0	0	121.023	91.903	0	1581.523	-1581.523	
40	0	0	1904.349	98.532	0	3485.872	-3485.872	
60	0	0	1856.775	87.145	0	5342.647	-5342.647	
80	0	0	1698.634	82.718	0	7041.28	-7041.28	
100	0	0	1609.436	78.226	0	8650.717	-8650.717	
120	0	0	1459.557	67.73	0	10110.273	-10110.273	
140	0	0	1260.695	58.339	0	11370.968	-11370.968	
160	0	0	1227.78	64.439	0	12598.749	-12598.749	
180	0	0	1078.56	43.417	0	13677.309	-13677.309	
200	0	0	575.127	14.095	0	14252.435	-14252.435	
220	42.775	4.277	140.953	0	42.775	14393.388	-14350.613	
240	238.336	19.556	0	0	281.111	14393.388	-14112.277	
260	551.433	35.587	0	0	832.544	14393.388	-13560.844	
280	798.661	44.279	0	0	1631.205	14393.388	-12762.183	
300	672.514	22.973	0	0	2303.72	14393.388	-12089.668	
320	375.977	14.625	0	0	2679.696	14393.388	-11713.692	
340	266.605	12.035	0	0	2946.301	14393.388	-11447.086	
345.327	62.032	11.253	0	0	3008.334	14393.388	-11385.054	Inicio: intersección
366.753	182.682	13.578	14.588	0	3191.015	14407.976	-11216.961	Final: intersección
380	169.411	11.999	0	0	3360.426	14407.976	-11047.55	
400	145.783	2.579	0.055	0.006	3506.208	14408.032	-10901.823	
420	25.79	0	161.383	16.133	3531.999	14569.415	-11037.416	
440	0	0	506.473	34.514	3531.999	15075.887	-11543.889	
460	0	0	688.051	34.291	3531.999	15763.938	-12231.94	
480	0	0	638.639	29.573	3531.999	16402.577	-12870.578	
500	0	0	519.016	22.328	3531.999	16921.593	-13389.594	
520	0	0	424.649	20.136	3531.999	17346.241	-13814.243	
521.885	0	0	37.492	19.639	3531.999	17383.734	-13851.735	Inicio: intersección
607.674	0.778	0	3518.618	16.893	3532.776	20902.352	-17369.575	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT5-C3 - MOVIMIENTO DE TIERRAS (Carretera compuesta 30)

P.K. (m)	Desmorte (m³)	Área de desmorte (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmorte acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	0	0	9.76	0	0	0	0 Inicio: intersección
12.74	951.439	0	649.746	6.325	951.439	649.746	301.693	Final: intersección
20	0	0	40.891	4.939	951.439	690.637	260.802	
40	15.378	1.538	49.389	0	966.817	740.026	226.791	
60	198.041	18.266	0	0	1164.857	740.026	424.831	
80	748.508	56.585	0	0	1913.366	740.026	1173.34	
100	1770.185	120.434	0	0	3683.551	740.026	2943.525	
102.893	362.889	130.412	0	0	4046.44	740.026	3306.414	
120	2698.731	185.106	0	0	6745.17	740.026	6005.144	
138.586	3380.729	178.691	0	0	10125.899	740.026	9385.873	
140	250.942	176.204	0	0	10376.841	740.026	9636.815	
160	3162.984	140.095	0	0	13539.825	740.026	12799.799	
180	2372.953	97.201	0	0	15912.778	740.026	15172.752	
200	1675.276	70.327	0	0	17588.054	740.026	16848.028	
220	1368.738	66.547	0	0	18956.792	740.026	18216.766	
237.048	1038.926	55.339	0	0	19995.718	740.026	19255.692	
240	166.571	57.498	0	0	20162.288	740.026	19422.262	
260	1266.564	69.159	0	0	21428.853	740.026	20688.827	
272.923	902.433	70.508	0	0	22331.286	740.026	21591.26	
280	514.721	74.948	0	0	22846.006	740.026	22105.98	
300	1528.119	77.864	0	0	24374.126	740.026	23634.1	
320	1455.951	67.731	0	0	25830.076	740.026	25090.05	
340	1266.887	58.958	0	0	27096.963	740.026	26356.937	
348.99	524.195	57.658	0	0	27621.158	740.026	26881.132	Inicio: intersección
374.853	2132.544	109.041	0	0	29753.702	740.026	29013.676	Final: intersección
380	568.927	112.04	0	0	30322.629	740.026	29582.603	
382.829	321.6	115.288	0	0	30644.229	740.026	29904.203	
400	2135.79	133.484	0	0	32780.018	740.026	32039.992	
420	2642.605	130.776	0	0	35422.623	740.026	34682.597	
440	2678.226	137.046	0	0	38100.849	740.026	37360.823	
456.125	2070.394	119.748	0	0	40171.243	740.026	39431.217	
460	459.026	117.164	0	0	40630.269	740.026	39890.243	
480	2100.247	92.861	0	0	42730.516	740.026	41990.49	
500	1568.26	63.965	0	0	44298.776	740.026	43558.75	
520	1189.333	54.968	0	0	45488.109	740.026	44748.083	
540	1005.793	45.611	0	0	46493.903	740.026	45753.877	
560	765.505	30.94	0	0	47259.408	740.026	46519.382	
580	436.752	12.736	0	0	47696.16	740.026	46956.134	
600	230.917	10.356	0	0	47927.077	740.026	47187.051	
620	185.465	8.19	0.003	0	48112.542	740.029	47372.513	
640	138.7	5.68	0.124	0.012	48251.242	740.153	47511.088	
660	91.027	3.423	0.121	0	48342.268	740.275	47601.994	
680	42.778	0.855	38.366	3.837	48385.046	778.641	47606.405	
700	116.346	10.78	38.366	0	48501.392	817.007	47684.385	
720	412.424	30.463	0	0	48913.816	817.007	48096.809	
740	754.731	45.011	0	0	49668.547	817.007	48851.54	
754.921	695.342	48.19	0	0	50363.889	817.007	49546.882	
760	253.321	51.571	0	0	50617.21	817.007	49800.203	
780	1096.589	58.088	0	0	51713.798	817.007	50896.792	
800	1246.651	66.577	0	0	52960.45	817.007	52143.443	
820	1009.133	34.336	0	0	53969.583	817.007	53152.576	
840	442.185	9.882	0	0	54411.767	817.007	53594.761	
846.914	58.562	7.057	0	0	54470.329	817.007	53653.322	

MODELO SIMPLIFICADO ALTERNATIVA ALT5-C3 - MOVIMIENTO DE TIERRAS (Carretera compuesta 31)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	80.722	0	0	0	0	0	0 Inicio: intersección
10.822	2132.544	83.077	0	0	2132.544	0	2132.544	Final: intersección
20	748.612	80.051	0	0	2881.156	0	2881.156	
22.836	226.515	79.715	0	0	3107.671	0	3107.671	Inicio: intersección
38.492	1142.503	64.961	0	0	4250.174	0	4250.174	Final: intersección
40	97.867	64.815	0	0	4348.042	0	4348.042	
60	962.664	31.452	0	0	5310.705	0	5310.705	
80	391.492	7.697	0	0	5702.197	0	5702.197	
84.11	28.433	6.138	0	0	5730.631	0	5730.631	Inicio: intersección
114.79	9.864	4.345	289.474	0	5740.495	289.474	5451.021	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT5-C3 - MOVIMIENTO DE TIERRAS (Carretera compuesta 32)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	0	0	144.204	0	0	0	0 Inicio: intersección
46.212	0	0	6277.314	144.904	0	6277.314	-6277.314	Final: intersección
60	0	0	1985.883	143.16	0	8263.196	-8263.196	
80	0	0	3135.471	170.387	0	11398.667	-11398.667	
100	0	0	3200.713	149.685	0	14599.38	-14599.38	
120	0	0	3163.406	166.656	0	17762.786	-17762.786	
140	0	0	3243.221	157.666	0	21006.007	-21006.007	
156.477	0	0	2491.297	144.733	0	23497.304	-23497.304	
160	0	0	514.091	147.107	0	24011.394	-24011.394	
174.257	0	0	2202.92	161.917	0	26214.314	-26214.314	
180	0	0	915.662	156.977	0	27129.976	-27129.976	
187.58	0	0	1144.091	144.895	0	28274.067	-28274.067	Inicio: intersección
245.422	0	0	6521.805	114.083	0	34795.872	-34795.872	Final: intersección
260	0	0	1625.707	108.947	0	36421.578	-36421.578	
280	0	0	2179.437	108.997	0	38601.016	-38601.016	
300	0	0	1988.557	89.859	0	40589.573	-40589.573	
313.398	0	0	1147.293	81.404	0	41736.866	-41736.866	Inicio: intersección
348.298	0	0	1686.24	68.173	0	43423.106	-43423.105	Final: intersección
360	0	0	840.008	75.392	0	44263.114	-44263.114	
380	0	0	1838.271	108.435	0	46101.385	-46101.385	
382.887	0	0	321.616	114.337	0	46423.001	-46423.001	
399.522	0	0	2000.436	126.183	0	48423.436	-48423.436	
400	0	0	60.565	127.036	0	48484.002	-48484.002	
403.757	0	0	489.609	133.589	0	48973.611	-48973.611	Inicio: puente
477.29	0	0	0	93.825	0	48973.611	-48973.611	Final: puente (Los cor
480	0	0	243.789	86.074	0	49217.4	-49217.4	
500	0	0	1406.403	54.566	0	50623.803	-50623.803	
520	0	0	943.909	39.825	0	51567.712	-51567.712	
540	0	0	895.138	49.689	0	52462.851	-52462.851	
560	0	0	920.502	42.361	0	53383.352	-53383.352	
579.257	0	0	652.803	25.437	0	54036.155	-54036.155	Inicio: intersección
590.102	951.439	0	649.746	16.606	951.439	54685.901	-53734.462	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT5-C3 - MOVIMIENTO DE TIERRAS (Carretera compuesta 33)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	0	0	58.154	0	0	0	0 Inicio: intersección
35.909	0	0	1686.24	15.606	0	1686.24	-1686.24	Final: intersección
40	0	0	56.134	11.838	0	1742.373	-1742.373	
60	0	0	130.669	1.229	0	1873.042	-1873.042	
80	141.447	14.145	12.286	0	141.447	1885.329	-1743.881	
100	361.863	22.042	0	0	503.31	1885.329	-1382.018	
120	463.893	24.348	0	0	967.204	1885.329	-918.125	
140	614.063	37.059	0	0	1581.267	1885.329	-304.062	
152.285	500.806	44.471	0	0	2082.073	1885.329	196.744	Inicio: intersección
174.808	2132.544	53.567	0	0	4214.617	1885.329	2329.289	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT5-C3 - MOVIMIENTO DE TIERRAS (Carretera compuesta 34)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	0	0	0	55.349	0	0	0 Inicio: intersección
61.894	0	0	2870.188	85.798	0	2870.188	-2870.188	Final: intersección
80	0	0	1570.188	87.647	0	4440.376	-4440.376	
100	0	0	1804.051	92.758	0	6244.427	-6244.427	
120	0	0	1942.983	101.54	0	8187.409	-8187.409	
140	0	0	2130.159	111.476	0	10317.569	-10317.569	
141.566	0	0	176.129	113.522	0	10493.698	-10493.698	
159.091	0	0	2091.21	125.128	0	12584.908	-12584.908	Inicio: puente
237.488	0	0	0	46.537	0	12584.908	-12584.908	Final: puente (Los com
240	0	0	115.876	45.708	0	12700.784	-12700.784	
260	0	0	719.875	26.279	0	13420.66	-13420.66	
280	0	0	408.902	14.611	0	13829.561	-13829.561	
300	0	0	148.076	0.197	0	13977.638	-13977.638	
320	78.254	7.825	1.968	0	78.254	13979.605	-13901.351	
325.926	51.745	9.639	0	0	129.999	13979.605	-13849.606	Inicio: intersección
432.1	6879.077	0	1835.668	24.94	7009.077	15815.273	-8806.196	Final: intersección
440	0	0	230.368	33.382	7009.077	16045.641	-9036.565	
440.9	0	0	30.312	33.983	7009.077	16075.954	-9066.877	Inicio: intersección
596.602	747.393	0	3561.961	9.643	7756.469	19637.914	-11881.445	Final: intersección
600	0	0	30.583	8.359	7756.469	19668.497	-11912.028	
620	0	0	97.523	1.393	7756.469	19766.02	-12009.55	
640	33.059	3.306	13.929	0	7789.528	19779.949	-11990.42	
660	43.571	1.051	2.264	0.226	7833.099	19782.212	-11949.114	
680	10.512	0	54.34	5.208	7843.61	19836.553	-11992.942	
700	0	0	151.706	9.963	7843.61	19988.259	-12144.649	
720	0	0	254.517	15.489	7843.61	20242.776	-12399.166	
740	0	0	354.091	19.92	7843.61	20596.867	-12753.257	
760	0	0	267.659	6.846	7843.61	20864.526	-13020.916	
780	36.643	3.664	68.734	0.028	7880.253	20933.26	-13053.007	
800	69.419	3.278	0.586	0.031	7949.673	20933.847	-12984.174	
810.358	30.278	2.569	0.354	0.038	7979.951	20934.201	-12954.25	
820	20.407	1.664	0.409	0.047	8000.357	20934.609	-12934.252	
824.487	4.154	0.187	2.491	1.063	8004.511	20937.1	-12932.589	
840	1.451	0	42.812	4.457	8005.962	20979.912	-12973.95	
860	0	0	116.702	7.213	8005.962	21096.614	-13090.652	
880	0	0	144.405	7.227	8005.962	21241.02	-13235.057	
900	0	0	269.906	19.763	8005.962	21510.926	-13504.964	
920	0	0	547.476	34.984	8005.962	22058.402	-14052.44	
940	0	0	724.355	37.451	8005.962	22782.757	-14776.795	
960	0	0	553.821	17.931	8005.962	23336.578	-15330.616	
980	88.481	8.848	179.309	0	8094.444	23515.886	-15421.443	
993.831	204.056	20.659	0	0	8298.499	23515.886	-15217.387	Inicio: intersección
1022.117	909.542	56.071	0	0	9208.041	23515.886	-14307.845	Final: intersección
1040	945.38	49.661	0	0	10153.421	23515.886	-13362.465	
1060	786.833	29.022	0	0	10940.254	23515.886	-12575.633	
1080	701.877	41.165	0	0	11642.13	23515.886	-11873.756	
1095.483	813.013	63.854	0	0	12455.144	23515.886	-11060.743	
1100	291.19	65.08	0	0	12746.334	23515.886	-10769.552	
1120	1482.406	83.16	0	0	14228.74	23515.886	-9287.147	
1123.983	348.552	91.854	0	0	14577.292	23515.886	-8938.595	
1140	1390.083	81.723	0	0	15967.375	23515.886	-7548.512	
1142.983	239.263	78.688	0	0	16206.638	23515.886	-7309.249	
1160	1426.086	88.92	0	0	17632.724	23515.886	-5883.163	
1161.983	179.87	92.481	0	0	17812.594	23515.886	-5703.292	
1180	1878.891	116.089	0	0	19691.485	23515.886	-3824.402	
1200	3282.88	212.199	0	0	22974.365	23515.886	-541.522	
1220	4996.387	287.439	0	0	27970.752	23515.886	4454.865	
1240	5067.386	219.299	0	0	33038.138	23515.886	9522.251	
1260	4516.854	232.386	0	0	37554.991	23515.886	14039.105	
1280	4143.571	181.971	0	0	41698.563	23515.886	18182.676	
1300	3624.441	180.473	0	0	45323.003	23515.886	21807.117	
1320	3044.691	123.996	0	0	48367.695	23515.886	24851.808	
1340	2006.847	76.689	0	0	50374.542	23515.886	26858.655	
1360	895.112	12.823	0.073	0.007	51269.654	23515.959	27753.694	
1360.212	2.676	12.432	0.002	0.011	51272.329	23515.961	27756.368	
1380	194.112	7.187	74.025	7.471	51466.441	23589.987	27876.454	
1393.245	162.446	17.342	92.17	6.447	51628.887	23682.156	27946.73	
1400	133.896	22.304	56.95	10.416	51762.783	23739.106	28023.676	
1407.557	174.048	23.758	91.162	13.71	51936.831	23830.268	28106.562	

MODELO SIMPLIFICADO ALTERNATIVA ALT5-C3 - MOVIMIENTO DE TIERRAS (Carretera compuesta 35)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	52.234	0	0	0	0	0	0 Inicio: intersección
14.817	1142.503	52.033	0	0	1142.503	0	1142.503	Final: intersección
20	270.633	52.405	0	0	1413.136	0	1413.136	
40	836.171	31.212	0	0	2249.307	0	2249.307	
60	544.473	23.235	0	0	2793.78	0	2793.78	
80	387.274	15.492	0	0	3181.055	0	3181.055	
100	322.185	16.726	0	0	3503.24	0	3503.24	
120	305.958	13.869	0	0	3809.198	0	3809.198	
137.483	256.782	15.506	0	0	4065.979	0	4065.979	Inicio: intersección
176.847	6879.077	14.35	1835.668	0	10945.057	1835.668	9109.389	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT5-C3 - MOVIMIENTO DE TIERRAS (Carretera compuesta 36)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	6.435	0	0	0	0	0	0 Inicio: intersección
33.441	1768.572	20.018	0.031	0	1768.572	0.031	1768.541	Final: intersección
40	123.881	17.759	0	0	1892.453	0.031	1892.422	
60	278.85	10.126	0	0	2171.303	0.031	2171.272	
80	101.311	0.005	6.952	0.695	2272.614	6.983	2265.631	
100	0.049	0	198.081	19.113	2272.663	205.064	2067.599	
120	0	0	578.206	38.708	2272.663	783.27	1489.393	
140	0	0	843.608	45.653	2272.663	1626.878	645.784	
160	0	0	737.544	28.101	2272.663	2364.422	-91.759	
180	0	0	411.273	13.026	2272.663	2775.695	-503.032	
200	0	0	283.173	15.291	2272.663	3058.868	-786.205	
220	0	0	447.67	29.476	2272.663	3506.538	-1233.875	
240	0	0	797.153	50.239	2272.663	4303.691	-2031.028	
245.092	0	0	269.871	55.768	2272.663	4573.561	-2300.899	Inicio: intersección
400.691	747.393	0	3561.961	8.889	3020.056	8135.522	-5115.466	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT7-R1 - MOVIMIENTO DE TIERRAS (Carretera compuesta 6)

P.K. (m)	Desmorte (m³)	Área de desmorte (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmorte acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	7.961	0	0	0	0	0	
20	328.39	24.878	0	0	328.39	0	328.39	
40	766.21	51.743	0	0	1094.599	0	1094.599	
60	1209.961	69.254	0	0	2304.56	0	2304.56	
80	1349.657	65.712	0	0	3654.218	0	3654.218	
100	1215.345	55.822	0	0	4869.563	0	4869.563	
120	1152.922	59.47	0	0	6022.485	0	6022.485	
140	948.849	35.415	0	0	6971.334	0	6971.334	
160	569.302	21.515	0	0	7540.636	0	7540.636	
180	431.436	21.629	0	0	7972.072	0	7972.072	
200	494.152	27.787	0	0	8466.223	0	8466.223	
220	614.405	33.654	0	0	9080.628	0	9080.628	
240	722.384	38.585	0	0	9803.012	0	9803.012	
260	817.524	43.168	0	0	10620.536	0	10620.536	
280	949.168	51.749	0	0	11569.704	0	11569.704	
300	1334.174	81.668	0	0	12903.878	0	12903.878	
320	1767.824	95.114	0	0	14671.702	0	14671.702	
340	1995.653	104.451	0	0	16667.355	0	16667.355	
360	2145.08	110.057	0	0	18812.435	0	18812.435	
380	2501.148	140.058	0	0	21313.583	0	21313.583	
391.472	1615.559	141.591	0	0	22929.142	0	22929.142	
400	1241.401	149.55	0	0	24170.544	0	24170.544	
420	3016.009	152.051	0	0	27186.553	0	27186.553	
440	2954.321	143.381	0	0	30140.875	0	30140.875	
460	2746.193	131.238	0	0	32887.068	0	32887.068	
469.222	1152.017	118.605	0	0	34039.084	0	34039.084	
480	1252.411	113.794	0	0	35291.495	0	35291.495	
500	2268.997	113.106	0	0	37560.492	0	37560.492	
511.18	1248.877	110.299	0	0	38809.37	0	38809.37	Inicio: intersección
577.033	4210.495	17.04	0	0	43019.864	0	43019.864	Final: intersección
580	46.005	13.969	0	0	43065.869	0	43065.869	
600	139.802	0.011	19.406	1.941	43205.671	19.407	43186.265	
620	0.107	0	306.013	28.661	43205.779	325.419	42880.359	
640	0	0	899.454	61.285	43205.779	1224.873	41980.905	
660	0	0	1469.638	85.679	43205.779	2694.511	40511.268	
680	0	0	1514.429	65.764	43205.779	4208.94	38996.838	
700	0	0	1152.446	49.481	43205.779	5361.387	37844.392	
720	0	0	1030.898	53.609	43205.779	6392.284	36813.494	
740	0	0	1013.589	47.75	43205.779	7405.873	35799.906	
760	0	0	877.347	39.985	43205.779	8283.22	34922.559	
780	0	0	694.859	29.501	43205.779	8978.078	34227.7	
800	0	0	609.495	31.449	43205.779	9587.574	33618.205	
820	0	0	697.222	38.274	43205.779	10284.795	32920.983	
840	0	0	841.996	45.926	43205.779	11126.791	32078.987	
860	0	0	956.376	49.712	43205.779	12083.168	31122.611	
880	0	0	883.977	38.686	43205.779	12967.145	30238.634	
900	0	0	696.07	30.921	43205.779	13663.215	29542.564	
913.308	0	0	362.827	23.608	43205.779	14026.042	29179.737	Inicio: intersección
1042.704	1446.159	0	3977.715	9.339	44651.937	18003.756	26648.181	Final: intersección
1060	0.602	0.07	89.179	0.973	44652.54	18092.936	26559.604	
1067.175	14.71	4.031	3.491	0	44667.249	18096.427	26570.823	Inicio: intersección
1145.433	729.045	0	793.734	14.076	45396.294	18890.161	26506.134	Final: intersección
1160	0	0	262.264	21.933	45396.294	19152.424	26243.87	
1180	0	0	629.42	41.009	45396.294	19781.844	25614.45	
1200	0	0	1221.715	81.162	45396.294	21003.56	24392.735	
1220	0	0	1833.238	102.161	45396.294	22836.798	22559.496	
1240	0	0	2124.156	110.254	45396.294	24960.954	20435.34	
1251.336	0	0	1126.127	88.434	45396.294	26087.081	19309.213	Inicio: intersección
1362.273	0.097	0	6966.191	105.59	45396.392	33053.272	12343.12	Final: intersección
1380	0	0	1614.538	76.569	45396.392	34667.81	10728.581	
1400	0	0	1302.121	53.643	45396.392	35969.932	9426.46	
1420	0	0	770.821	23.439	45396.392	36740.753	8655.639	
1440	0	0	450.082	21.569	45396.392	37190.834	8205.557	
1460	83.927	8.393	215.733	0.004	45480.318	37406.567	8073.751	
1465.101	55.662	13.432	0.01	0	45535.98	37406.577	8129.403	
1480	505.466	54.42	0	0	46041.446	37406.577	8634.869	
1487.093	497.444	85.838	0	0	46538.89	37406.577	9132.313	
1500	1492.962	145.508	0	0	48031.852	37406.577	10625.275	
1520	3276.149	182.107	0	0	51308.001	37406.577	13901.424	
1521.498	268.427	176.385	0	0	51576.428	37406.577	14169.851	
1540	3259.517	175.949	0	0	54835.945	37406.577	17429.368	
1560	3661.899	190.241	0	0	58497.844	37406.577	21091.267	
1580	3883.735	198.132	0	0	62381.579	37406.577	24975.002	
1600	3921.264	193.994	0	0	66302.843	37406.577	28896.266	
1620	3687.354	174.741	0	0	69990.197	37406.577	32583.62	
1640	2982.837	123.543	0	0	72973.034	37406.577	35566.457	
1660	2116.566	88.114	0	0	75089.599	37406.577	37683.022	
1680	2127.289	124.615	0	0	77216.889	37406.577	39810.312	
1697.602	2530.63	162.926	0	0	79747.519	37406.577	42340.942	

MODELO SIMPLIFICADO ALTERNATIVA ALT7-R1 - MOVIMIENTO DE TIERRAS (Carretera compuesta 7)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	19.233	0	0	0	0	0	0 Inicio: intersección
37.336	763.582	28.3	0	0	763.582	0	763.582	Final: intersección
40	74.813	27.866	0	0	838.395	0	838.395	
47.99	217.537	26.584	0	0	1055.932	0	1055.932	
60	306.892	24.523	0	0	1362.824	0	1362.824	
70.49	227.712	18.89	0	0	1590.536	0	1590.536	
80	149.561	12.564	0	0	1740.097	0	1740.097	
85.49	59.954	9.276	0	0	1800.051	0	1800.051	
100	81.446	1.951	1.855	0.256	1881.498	1.855	1879.643	
100.49	0.938	1.874	0.17	0.439	1882.435	2.025	1880.41	
120	19.745	0.151	53.046	4.999	1902.181	55.071	1847.109	
140	1.505	0	142.787	9.28	1903.686	197.858	1705.828	
160	0	0	238.059	14.526	1903.686	435.917	1467.769	
180	0	0	416.577	27.132	1903.686	852.494	1051.191	
200	0	0	604.961	33.364	1903.686	1457.455	446.23	
220	0	0	787.14	45.35	1903.686	2244.595	-340.909	
240	0	0	1158.229	70.473	1903.686	3402.825	-1499.139	
260	0	0	1686.417	98.169	1903.686	5089.241	-3185.556	
280	0	0	2174.944	119.326	1903.686	7264.186	-5360.5	
300	0	0	2515.814	132.256	1903.686	9780	-7876.314	
320	0	0	3050.019	172.746	1903.686	12830.019	-10926.334	
323.292	0	0	580.097	179.654	1903.686	13410.116	-11506.43	Inicio: puente
402.981	0	0	0	351.706	1903.686	13410.116	-11506.43	Final: puente
420	0	0	5499.437	294.553	1903.686	18909.553	-17005.868	
440	0	0	5311.676	236.615	1903.686	24221.23	-22317.544	
460	0	0	4350.507	198.436	1903.686	28571.736	-26668.051	
480	0	0	3740.404	175.605	1903.686	32312.14	-30408.454	
500	0	0	3242.18	148.613	1903.686	35554.319	-33650.634	
514.875	0	0	2035.083	125.006	1903.686	37589.403	-35685.717	
520	0	0	623.934	118.495	1903.686	38213.337	-36309.651	
529.875	0	0	1113.04	106.924	1903.686	39326.376	-37422.691	
540	0	0	1020.544	94.671	1903.686	40346.92	-38443.235	
544.875	0	0	447.588	88.944	1903.686	40794.508	-38890.823	
560	0	0	1225.907	73.163	1903.686	42020.415	-40116.73	
567.375	0	0	509.582	65.023	1903.686	42529.997	-40626.311	
580	0	0	729.899	50.607	1903.686	43259.896	-41356.21	
600	0	0	768.258	26.219	1903.686	44028.154	-42124.469	
620	0	0	316.343	5.415	1903.686	44344.497	-42440.812	
640	107.964	10.796	54.153	0	2011.65	44398.651	-42387.001	
660	227.904	11.994	0	0	2239.554	44398.651	-42159.096	
665.298	64.456	12.336	0	0	2304.01	44398.651	-42094.641	Inicio: intersección
790.308	1776.276	0	1066.477	7.844	4080.286	45465.127	-41384.841	Final: intersección
800	1.224	0.253	46.485	1.748	4081.51	45511.612	-41430.102	
811.04	31.05	5.372	9.65	0	4112.561	45521.262	-41408.702	Inicio: intersección
888.777	729.045	2.94	793.734	0	4841.605	46314.996	-41473.391	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT7-R1 - MOVIMIENTO DE TIERRAS (Carretera compuesta 9)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	4.545	0	0	0	0	0	0 Inicio: intersección
44.619	1446.159	0	3977.715	7.164	1446.159	3977.715	-2531.556	Final: intersección
60	0	0	89.078	4.419	1446.159	4066.793	-2620.634	
80	0	0	54.76	1.057	1446.159	4121.553	-2675.394	
100	81.021	8.102	10.568	0	1527.18	4132.121	-2604.941	
120	334.272	25.325	0	0	1861.452	4132.121	-2270.669	
133.307	435.384	40.111	0	0	2296.836	4132.121	-1835.285	Inicio: intersección
180.803	4806.279	79.18	1.275	0	7103.115	4133.396	2969.719	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT7-R1 - MOVIMIENTO DE TIERRAS (Carretera compuesta 10)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	60.457	0	0	0	0	0	0
19.6	1442.459	86.732	0	0	1442.459	0	1442.459	
20	34.866	87.597	0	0	1477.325	0	1477.325	
40	2053.091	117.712	0	0	3530.417	0	3530.417	
56.021	1796.895	106.6	0	0	5327.312	0	5327.312	Inicio: intersección
70.289	1111.719	92.914	0	0	6439.031	0	6439.031	Final: intersección
75.672	487.386	88.184	0	0	6926.417	0	6926.417	
80	374.629	84.936	0	0	7301.047	0	7301.047	
93.365	1107.902	80.858	0	0	8408.949	0	8408.949	
100	536.5	80.858	0	0	8945.449	0	8945.449	
120	1662.013	85.344	0	0	10607.462	0	10607.462	
120.748	64.085	86.02	0	0	10671.547	0	10671.547	
140	1841.778	105.313	0	0	12513.325	0	12513.325	
149.478	1026.799	111.362	0	0	13540.123	0	13540.123	
156.066	733.702	111.362	0	0	14273.825	0	14273.825	
158.379	257.587	111.362	0	0	14531.412	0	14531.412	Inicio: intersección
188.555	4806.279	97.692	1.275	0	19337.691	1.275	19336.415	Final: intersección
194.266	537.664	90.586	0	0	19875.355	1.275	19874.079	
200	489.606	80.195	0	0	20364.961	1.275	20363.686	
220	1426.265	62.432	0	0	21791.226	1.275	21789.95	
228.546	555.668	67.609	0	0	22346.894	1.275	22345.618	Inicio: intersección
275.857	4069.915	55.389	0.063	0	26416.809	1.339	26415.47	Final: intersección
280	229.265	55.283	0	0	26646.074	1.339	26644.735	
297.639	908.737	47.758	0	0	27554.812	1.339	27553.473	
299.741	98.43	45.862	0	0	27653.242	1.339	27651.903	Inicio: intersección
339.83	2051.375	32.138	226.063	0	29704.617	227.402	29477.215	Final: intersección
340	5.482	32.172	0	0	29710.099	227.402	29482.697	
346.871	230.43	34.897	0	0	29940.529	227.402	29713.127	
360	516.074	43.722	0	0	30456.602	227.402	30229.201	
364.567	206.417	46.675	0	0	30663.019	227.402	30435.617	
380	801.922	57.247	0	0	31464.941	227.402	31237.539	
400	1344.803	77.233	0	0	32809.744	227.402	32582.343	
406.882	568.955	88.112	0	0	33378.699	227.402	33151.298	Inicio: intersección
432.894	2607.883	132.224	0	0	35986.583	227.402	35759.181	Final: intersección
440	965.512	139.537	0	0	36952.094	227.402	36724.693	
453.82	2012.479	151.702	0	0	38964.573	227.402	38737.172	Inicio: intersección
480.215	4724.599	134.172	0	0	43689.172	227.402	43461.77	Final: intersección
500	2392.475	107.669	0	0	46081.647	227.402	45854.245	
520	1689.315	61.262	0	0	47770.962	227.402	47543.56	
520.109	6.658	61.142	0	0	47777.62	227.402	47550.218	
538.709	1130.477	60.415	0	0	48908.097	227.402	48680.695	

MODELO SIMPLIFICADO ALTERNATIVA ALT7-R1 - MOVIMIENTO DE TIERRAS (Carretera compuesta 11)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	35.41	0	0	0	0	0	0 Inicio: intersección
54.812	2051.375	24.739	226.063	0	2051.375	226.063	1825.312	Final: intersección
60	131.089	25.801	0	0	2182.463	226.063	1956.401	
64.691	123.668	26.921	0	0	2306.132	226.063	2080.069	
80	435.29	29.947	0	0	2741.422	226.063	2515.359	
83.985	118.66	29.611	0	0	2860.082	226.063	2634.02	
94.705	362.917	38.098	0	0	3223	226.063	2996.937	Inicio: intersección
139.77	4210.495	62.772	0	0	7433.495	226.063	7207.432	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT7-R1 - MOVIMIENTO DE TIERRAS (Carretera compuesta 12)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	61.873	0	0	0	0	0	0 Inicio: intersección
17.935	4210.495	62.823	0	0	4210.495	0	4210.494	Final: intersección
20	130.47	63.522	0	0	4340.965	0	4340.965	
40	1178.128	54.291	0	0	5519.093	0	5519.093	
60	985.796	44.289	0	0	6504.889	0	6504.889	
80	913.887	47.1	0	0	7418.776	0	7418.776	
100	1047.447	57.645	0	0	8466.224	0	8466.223	
120	1509.175	93.273	0	0	9975.399	0	9975.399	
122.619	247.197	95.484	0	0	10222.595	0	10222.595	Inicio: intersección
154.104	2607.883	100.158	0	0	12830.479	0	12830.478	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT7-R1 - MOVIMIENTO DE TIERRAS (Carretera compuesta 14)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	0	0	0	25.434	0	0	0 Inicio: intersección
59.933	0.097	0	6966.191	90.454	0.097	6966.191	-6966.093	Final: intersección
60	0	0	6.053	90.663	0.097	6972.244	-6972.146	
80	0	0	2154.083	124.746	0.097	9126.327	-9126.229	
100	0	0	2452.553	120.51	0.097	11578.879	-11578.782	
120	0	0	2298.456	109.336	0.097	13877.335	-13877.238	
140	0	0	1840.702	74.734	0.097	15718.037	-15717.94	
160	0	0	1403.63	65.629	0.097	17121.668	-17121.57	
180	0	0	1162.136	50.585	0.097	18283.804	-18283.707	
200	0	0	898.774	39.293	0.097	19182.578	-19182.481	
200.643	0	0	25.32	39.477	0.097	19207.898	-19207.801	
220	0	0	819.955	45.242	0.097	20027.853	-20027.756	
223.143	0	0	144.003	46.395	0.097	20171.855	-20171.758	
238.143	0	0	729.634	50.89	0.097	20901.49	-20901.393	
240	0	0	95.012	51.433	0.097	20996.502	-20996.405	
253.143	0	0	699.751	55.051	0.097	21696.253	-21696.156	
260	0	0	380.287	55.867	0.097	22076.54	-22076.443	
267.932	0	0	441.506	55.455	0.097	22518.046	-22517.948	
280	0	0	650.474	52.347	0.097	23168.52	-23168.422	
282.932	0	0	152.242	51.5	0.097	23320.762	-23320.665	
297.932	0	0	740.541	47.238	0.097	24061.303	-24061.206	
300	0	0	97.498	47.056	0.097	24158.801	-24158.703	
320	0	0	1014.14	54.358	0.097	25172.94	-25172.843	
320.432	0	0	23.521	54.523	0.097	25196.461	-25196.364	
340	0	0	1206.576	68.799	0.097	26403.038	-26402.94	
360	0	0	1439.583	75.159	0.097	27842.621	-27842.524	
380	0	0	1529.65	77.806	0.097	29372.271	-29372.174	
400	0	0	1395.642	61.758	0.097	30767.913	-30767.816	
420	0	0	965.157	34.757	0.097	31733.07	-31732.973	
440	0	0	538.559	19.099	0.097	32271.629	-32271.531	
460	0	0	351.872	16.089	0.097	32623.501	-32623.404	
480	0	0	379.358	21.847	0.097	33002.858	-33002.761	
500	0	0	582.98	36.451	0.097	33585.838	-33585.741	
520	0	0	721.125	35.662	0.097	34306.963	-34306.866	
540	0	0	649.933	29.332	0.097	34956.896	-34956.799	
560	0	0	455.77	16.245	0.097	35412.666	-35412.569	
580	0	0	215.401	5.295	0.097	35628.067	-35627.97	
600	0.985	0.098	58.565	0.562	1.082	35686.633	-35685.551	
620	28.423	2.744	5.617	0	29.505	35692.25	-35662.745	
640	27.439	0	29.173	2.917	56.944	35721.424	-35664.48	
660	2.341	0.234	33.625	0.445	59.284	35755.048	-35695.764	
680	2.341	0	136.515	13.206	61.625	35891.563	-35829.938	
700	0	0	287.768	15.57	61.625	36179.331	-36117.706	
720	0	0	406.988	25.128	61.625	36586.319	-36524.694	
727.879	0	0	189.075	22.868	61.625	36775.394	-36713.769	
740	0	0	237.049	16.245	61.625	37012.443	-36950.818	
750.736	0	0	107.574	3.796	61.625	37120.017	-37058.392	
760	20.58	4.443	17.581	0	82.205	37137.599	-37055.394	
765.974	35.221	7.349	0	0	117.426	37137.599	-37020.173	
780	162.433	15.813	0	0	279.859	37137.599	-36857.74	
781.212	19.834	16.916	0	0	299.693	37137.599	-36837.906	
781.974	13.177	17.674	0	0	312.871	37137.599	-36824.728	
800	466.881	34.126	0	0	779.752	37137.599	-36357.847	
820	683.693	34.243	0	0	1463.444	37137.599	-35674.155	
840	606.577	26.415	0	0	2070.021	37137.599	-35067.578	
860	466.64	20.249	0	0	2536.661	37137.599	-34600.938	
880	391.625	18.913	0	0	2928.287	37137.599	-34209.312	
900	354.662	16.553	0	0	3282.949	37137.599	-33854.65	
920	330.697	16.517	0	0	3613.646	37137.599	-33523.953	
940	301.402	13.623	0	0	3915.048	37137.599	-33222.551	
940.956	12.935	13.438	0	0	3927.983	37137.599	-33209.616	
941.718	10.159	13.229	0	0	3938.142	37137.599	-33199.457	
956.956	135.925	4.611	0	0	4074.067	37137.599	-33063.531	
960	11.729	3.095	0	0	4085.797	37137.599	-33051.802	
972.194	18.871	0	17.869	2.931	4104.668	37155.468	-33050.8	
980	0	0	19.347	2.026	4104.668	37174.815	-33070.147	
995.051	4.625	0.615	23.209	1.058	4109.293	37198.023	-33088.731	
1000	3.195	0.677	5.745	1.264	4112.488	37203.768	-33091.28	
1009.307	8.187	1.083	8.866	0.641	4120.675	37212.634	-33091.96	Inicio: intersección
1046.178	273.991	22.444	0	0	4394.666	37212.634	-32817.968	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT7-R1 - MOVIMIENTO DE TIERRAS (Carretera compuesta 15)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	10.004	0	0	0	0	0	
20	339.222	23.918	0	0	339.222	0	339.222	
40	552.401	31.322	0	0	891.623	0	891.623	
60	606.439	29.322	0.453	0.045	1498.062	0.453	1497.609	
80	532.999	23.978	1.187	0.073	2031.06	1.64	2029.42	
100	609.564	36.978	0.735	0	2640.624	2.375	2638.249	
120	862.232	49.245	0	0	3502.857	2.375	3500.482	
140	1096.134	60.368	0	0	4598.991	2.375	4596.616	
160	1311.093	70.741	0	0	5910.084	2.375	5907.709	
180	1481.669	77.426	0	0	7391.753	2.375	7389.378	
200	1532.506	75.825	0	0	8924.259	2.375	8921.884	
220	1592.173	83.393	0	0	10516.431	2.375	10514.057	
240	1777.144	94.322	0	0	12293.576	2.375	12291.201	
260	1737.78	79.456	0	0	14031.356	2.375	14028.981	
268.317	614.614	68.332	0	0	14645.97	2.375	14643.596	Inicio: intersección
306.655	273.991	8.362	0	0.008	14919.962	2.375	14917.587	Final: intersección
320	56.089	0.044	23.462	3.508	14976.051	25.837	14950.215	
336.657	0.487	0.014	46.609	2.088	14976.538	72.446	14904.093	
340	0.116	0.055	6.845	2.007	14976.654	79.29	14897.364	
346.657	1.103	0.276	13.132	1.938	14977.757	92.422	14885.335	
356.657	19.2	3.564	11.312	0.325	14996.957	103.734	14893.223	
360	14.909	5.357	0.696	0.092	15011.866	104.43	14907.436	
361.657	9.714	6.367	0.131	0.067	15021.581	104.561	14917.019	
380	251.535	21.059	0.614	0	15273.115	105.175	15167.94	
381.732	37.732	22.499	0	0	15310.847	105.175	15205.672	Inicio: intersección
418.971	763.582	31.119	0	0	16074.43	105.175	15969.254	Final: intersección
420	32.068	31.223	0	0	16106.497	105.175	16001.322	
440	639.159	32.693	0	0	16745.656	105.175	16640.481	
460	652.08	32.515	0	0	17397.736	105.175	17292.561	
480	626.201	30.105	0	0	18023.937	105.175	17918.762	
500	797.312	49.626	0	0	18821.25	105.175	18716.074	
520	1019.338	52.308	0	0	19840.588	105.175	19735.412	
524.991	251.372	48.431	0	0	20091.96	105.175	19986.784	
529.991	230.141	43.625	0	0	20322.101	105.175	20216.925	
539.991	382.334	32.842	0	0	20704.435	105.175	20599.259	
540	0.31	32.83	0	0	20704.745	105.175	20599.569	
549.991	263.941	20.008	0	0	20968.686	105.175	20863.511	
560	148.987	9.761	0	0	21117.673	105.175	21012.497	
580	97.614	0	52.67	5.267	21215.287	157.846	21057.441	
587.604	0	0	57.927	9.97	21215.287	215.773	20999.514	
600	0	0	216.177	24.907	21215.287	431.95	20783.337	
613.085	0	0	398.602	36.016	21215.287	830.552	20384.735	
616.024	0	0	107.389	37.072	21215.287	937.941	20277.346	
616.381	0	0	13.259	37.123	21215.287	951.2	20264.087	
620	0	0	133.104	36.441	21215.287	1084.304	20130.983	
628.419	0	0	264.768	26.46	21215.287	1349.073	19866.214	
640	0.474	0.082	174.283	3.637	21215.761	1523.355	19692.406	
643.752	5.737	2.976	8.072	0.666	21221.498	1531.428	19690.07	
660	164.992	17.333	5.408	0	21386.49	1536.836	19849.654	
674.419	365.166	33.319	0	0	21751.656	1536.836	20214.82	
679.349	174.62	37.509	0	0	21926.276	1536.836	20389.44	
680	24.584	38.061	0	0	21950.86	1536.836	20414.024	
700	924.804	54.419	0	0	22875.664	1536.836	21338.828	
710.016	583.615	62.117	0	0	23459.279	1536.836	21922.443	
720	656.125	69.319	0	0	24115.404	1536.836	22578.568	
725.349	381.112	73.17	0	0	24496.516	1536.836	22959.68	
735.931	801.522	78.326	0	0	25298.038	1536.836	23761.202	Inicio: intersección
768.167	4069.915	80.926	0.063	0	29367.953	1536.899	27831.054	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT7-R1 - MOVIMIENTO DE TIERRAS (Carretera compuesta 16)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	2.685	0	0	0	0	0	0
20	80.586	5.374	0	0	80.586	0	80.586	
40	96.103	4.237	0	0	176.689	0	176.689	
60	42.366	0	33.297	3.33	219.055	33.297	185.758	
80	0	0	127.058	9.376	219.055	160.355	58.7	
100	0	0	200.391	10.663	219.055	360.746	-141.691	
120	0	0	157.527	5.09	219.055	518.272	-299.217	
140	29.71	2.971	50.896	0	248.765	569.168	-320.404	
160	218.245	18.853	0	0	467.01	569.168	-102.158	
180	338.646	15.011	0	0	805.656	569.168	236.488	
200	226.507	7.64	0	0	1032.163	569.168	462.994	
220	132.791	5.64	0	0	1164.954	569.168	595.785	
240	93.272	3.688	0	0	1258.225	569.168	689.057	
260	57.833	2.096	0.022	0.002	1316.059	569.19	746.868	
280	103.765	8.281	0.022	0	1419.824	569.212	850.612	
290.088	106.062	12.746	0	0	1525.885	569.212	956.674	
300	167.957	21.144	0	0	1693.842	569.212	1124.63	
312.945	356.243	33.894	0	0	2050.085	569.212	1480.873	
320	264.681	41.142	0	0	2314.766	569.212	1745.554	
328.183	339.92	41.933	0	0	2654.686	569.212	2085.474	
334.248	258.062	43.174	0	0	2912.748	569.212	2343.536	
340	256.193	45.902	0	0	3168.941	569.212	2599.729	
343.421	160.088	47.676	0	0	3329.029	569.212	2759.817	
360	764.485	44.55	0	0	4093.513	569.212	3524.301	
360.183	8.156	44.395	0	0	4101.669	569.212	3532.458	
380	710.885	27.351	0	0	4812.554	569.212	4243.343	
385.829	148.206	23.505	0	0	4960.76	569.212	4391.549	
400	287.617	17.086	0	0	5248.377	569.212	4679.166	
420	262.431	9.157	0	0	5510.808	569.212	4941.597	
440	262.134	17.057	0	0	5772.942	569.212	5203.73	
460	515.391	34.483	0	0	6288.333	569.212	5719.121	
480	1031.321	68.65	0	0	7319.654	569.212	6750.442	
490.581	840.816	90.282	0	0	8160.47	569.212	7591.258	
500	920.432	105.157	0	0	9080.902	569.212	8511.69	
507.343	820.163	118.237	0	0	9901.065	569.212	9331.854	
517.756	1289.149	129.352	0	0	11190.214	569.212	10621.003	Inicio: intersección
547.628	4724.599	114.71	0	0	15914.813	569.212	15345.601	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT7-R1 - MOVIMIENTO DE TIERRAS (Carretera compuesta 17)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	78.044	0	0	0	0	0	Inicio: intersección
19.24	1111.719	67.27	0	0	1111.719	0	1111.719	Final: intersección
20	50.946	66.862	0	0	1162.665	0	1162.665	
40	1228.358	55.973	0	0	2391.023	0	2391.023	
60	983.737	42.4	0	0	3374.76	0	3374.76	
80	725.608	30.16	0	0	4100.368	0	4100.368	
100	585.158	28.355	0	0	4685.526	0	4685.526	
119.155	477.215	21.472	0	0	5162.741	0	5162.741	Inicio: intersección
208.987	1776.276	0	1066.477	1.656	6939.017	1066.477	5872.54	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT8-R2 - MOVIMIENTO DE TIERRAS (Carretera compuesta 6)

P.K. (m)	Desmorte (m³)	Área de desmorte (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmorte acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	5.282	0	0	0	0	0	
20	306.355	25.354	0	0	306.355	0	306.355	
40	811.788	55.825	0	0	1118.143	0	1118.143	
60	1309.562	75.131	0	0	2427.704	0	2427.704	
80	1470.926	71.961	0	0	3898.631	0	3898.631	
100	1328.993	60.938	0	0	5227.623	0	5227.623	
120	1261.554	65.218	0	0	6489.177	0	6489.177	
140	1030.272	37.81	0	0	7519.45	0	7519.45	
160	591.086	21.299	0	0	8110.536	0	8110.536	
180	427.302	21.431	0	0	8537.838	0	8537.838	
200	500.725	28.641	0	0	9038.563	0	9038.563	
220	641.698	35.529	0	0	9680.261	0	9680.261	
240	770.523	41.524	0	0	10450.784	0	10450.784	
260	884.311	46.907	0	0	11335.095	0	11335.095	
280	1041.048	57.197	0	0	12376.143	0	12376.143	
300	1474.361	90.239	0	0	13850.504	0	13850.504	
320	1954.64	105.225	0	0	15805.145	0	15805.145	
340	2212.536	116.028	0	0	18017.68	0	18017.68	
360	2388.333	122.805	0	0	20406.014	0	20406.014	
380	2785.918	155.787	0	0	23191.932	0	23191.932	
391.472	1799.88	157.996	0	0	24991.812	0	24991.812	
400	1387.604	167.433	0	0	26379.416	0	26379.416	
420	3378.536	170.421	0	0	29757.952	0	29757.952	
440	3311.387	160.718	0	0	33069.338	0	33069.338	
460	3081.955	147.478	0	0	36151.294	0	36151.294	
469.222	1295.902	133.571	0	0	37447.196	0	37447.196	
480	1392.549	124.832	0	0	38839.744	0	38839.744	
500	2293.048	104.473	0	0	41132.792	0	41132.792	
502.657	271.857	100.145	0	0	41404.649	0	41404.649	Inicio: intersección
556.996	2690.958	42.748	0	0	44095.607	0	44095.607	Final: intersección
560	124.786	40.325	0	0	44220.393	0	44220.393	
580	646.292	24.304	0	0	44866.685	0	44866.685	
600	367.714	12.468	0	0	45234.399	0	45234.399	
620	124.676	0	61.781	6.178	45359.075	61.781	45297.294	
640	0	0	293.557	23.178	45359.075	355.338	45003.737	
660	0	0	627.183	39.541	45359.075	982.521	44376.554	
680	0	0	715.348	31.994	45359.075	1697.869	43661.206	
700	0	0	543.416	22.348	45359.075	2241.285	43117.79	
720	0	0	454.996	23.152	45359.075	2696.281	42662.794	
724.41	0	0	98.032	21.31	45359.075	2794.313	42564.762	
740	0	0	281.667	14.823	45359.075	3075.98	42283.095	
760	0	0	202.41	5.418	45359.075	3278.39	42080.685	
780	59.146	5.915	54.178	0	45418.221	3332.567	42085.654	
800	130.925	7.178	0	0	45549.146	3332.567	42216.579	
820	114.226	4.245	0.012	0.001	45663.372	3332.579	42330.793	
840	126.835	8.439	0.012	0	45790.207	3332.591	42457.616	
852.624	143.033	14.221	0	0	45933.24	3332.591	42600.649	Inicio: intersección
983.414	16307.595	138.224	1563.227	0	62240.835	4895.819	57345.017	Final: intersección
1000	1993.295	102.141	0	0	64234.13	4895.819	59338.312	
1020	1623.592	60.218	0	0	65857.722	4895.819	60961.904	
1040	1091.925	48.974	0	0	66949.647	4895.819	62053.829	
1052.318	613.168	50.586	0	0	67562.815	4895.819	62666.996	Inicio: intersección
1160.98	6428.618	15.511	802.857	0	73991.433	5698.675	68292.757	Final: intersección
1180	159.539	1.265	28.912	3.04	74150.971	5727.587	68423.384	
1200	12.646	0	369.795	33.939	74163.618	6097.382	68066.236	
1220	0	0	855.27	51.588	74163.618	6952.652	67210.966	
1240	0	0	1087.331	57.145	74163.618	8039.983	66123.635	
1245.603	0	0	312.045	54.233	74163.618	8352.028	65811.59	Inicio: intersección
1354.031	336.113	0	1823.088	48.1	74499.731	10175.116	64324.615	Final: intersección
1360	0	0	309.096	55.473	74499.731	10484.212	64015.519	
1380	0	0	844.678	28.995	74499.731	11328.89	63170.841	
1400	0	0	382.679	9.273	74499.731	11711.569	62788.162	
1420	196.432	19.643	92.731	0	74696.163	11804.299	62891.863	
1440	393.249	19.682	0	0	75089.412	11804.299	63285.113	
1460	767.342	57.052	0	0	75856.754	11804.299	64052.455	
1480	1825.64	125.512	0	0	77682.395	11804.299	65878.095	
1500	3730.027	247.491	0	0	81412.422	11804.299	69608.122	
1520	5306.014	283.11	0	0	86718.436	11804.299	74914.136	
1521.498	420.72	278.774	0	0	87139.156	11804.299	75334.857	
1540	5057.039	267.861	0	0	92196.195	11804.299	80391.896	
1560	5437.464	275.886	0	0	97633.659	11804.299	85829.359	
1580	5536.511	277.765	0	0	103170.17	11804.299	91365.871	
1600	5412.537	263.488	0	0	108582.707	11804.299	96778.408	
1620	4945.59	231.071	0	0	113528.297	11804.299	101723.998	
1621.209	281.856	235.246	0	0	113810.153	11804.299	102005.854	
1640	3795.924	168.767	0	0	117606.077	11804.299	105801.778	
1660	2892.416	120.475	0	0	120498.493	11804.299	108694.194	
1680	2753.153	154.84	0	0	123251.646	11804.299	111447.347	
1697.602	3061.37	193.005	0	0	126313.017	11804.299	114508.717	

MODELO SIMPLIFICADO ALTERNATIVA ALTR-R2 - MOVIMIENTO DE TIERRAS (Carretera compuesta 14)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	2.939	0	0	0	0	0	0 Inicio: intersección
65.726	336.113	0	1823.088	79.353	336.113	1823.088	-1486.975	Final: intersección
68.362	0	0	214.615	83.518	336.113	2037.703	-1701.59	
80	0	0	1063.845	99.301	336.113	3101.549	-2765.435	
83.362	0	0	340.251	103.122	336.113	3441.8	-3105.686	
100	0	0	1659.415	96.348	336.113	5101.214	-4765.101	
120	0	0	1818.041	85.456	336.113	6919.255	-6583.142	
140	0	0	1330.768	47.621	336.113	8250.023	-7913.91	
160	0	0	863.4	38.719	336.113	9113.424	-8777.311	
180	0	0	609.522	22.233	336.113	9722.946	-9386.833	
200	0	0	338.103	11.577	336.113	10061.049	-9724.936	
220	0	0	284.286	16.852	336.113	10345.335	-10009.222	
240	0	0	393.826	22.531	336.113	10739.161	-10403.048	
260	0	0	474.958	24.965	336.113	11214.119	-10878.006	
280	0	0	466.029	21.638	336.113	11680.148	-11344.035	
300	0	0	436.065	21.968	336.113	12116.213	-11780.1	
320	0	0	578.311	35.863	336.113	12694.525	-12358.412	
340	0	0	900.634	54.201	336.113	13595.159	-13259.046	
360	0	0	1149.835	60.783	336.113	14744.994	-14408.88	
380	0	0	1254.808	64.698	336.113	15999.801	-15663.688	
400	0	0	1098.046	45.107	336.113	17097.847	-16761.734	
420	0	0	618.085	16.702	336.113	17715.932	-17379.819	
436.396	0	0	177.148	4.906	336.113	17893.08	-17556.967	
440	0	0	14.108	2.924	336.113	17907.188	-17571.075	
451.396	3.029	0.532	23.527	1.205	339.143	17930.715	-17591.572	
460	3.164	0.204	13.383	1.906	342.307	17944.098	-17601.792	
466.396	0.833	0.057	15.079	2.809	343.14	17959.177	-17616.038	
480	0.385	0	67.177	7.068	343.525	18026.355	-17682.83	
488.896	0	0	82.467	11.472	343.525	18108.822	-17765.297	
500	0	0	195.258	23.699	343.525	18304.08	-17960.555	
520	0	0	453.685	21.67	343.525	18757.765	-18414.24	
540	0	0	374.167	15.747	343.525	19131.932	-18788.407	
560	0	0	190.963	3.349	343.525	19322.896	-18979.371	
580	52.664	5.266	33.494	0	396.189	19356.39	-18960.2	
600	156.552	10.389	0	0	552.742	19356.39	-18803.648	
620	234.222	13.033	0	0	786.963	19356.39	-18569.426	
640	187.454	5.712	0	0	974.417	19356.39	-18381.973	
660	138.502	8.138	0	0	1112.919	19356.39	-18243.471	
680	81.382	0	48.789	4.879	1194.301	19405.178	-18210.878	
700	0	0	130.59	8.18	1194.301	19535.769	-18341.468	
720	0	0	261.97	18.017	1194.301	19797.739	-18603.438	
740	0	0	255.724	7.555	1194.301	20053.463	-18859.162	
760	135.971	13.597	75.555	0	1330.272	20129.017	-18798.746	
763.185	46.832	15.809	0	0	1377.103	20129.017	-18751.914	
780	416.026	33.674	0	0	1793.13	20129.017	-18335.888	
786.042	232.682	43.345	0	0	2025.812	20129.017	-18103.206	
800	728.551	61.049	0	0	2754.363	20129.017	-17374.655	
801.28	78.631	61.778	0	0	2832.994	20129.017	-17296.024	
816.518	1008.785	70.625	0	0	3841.778	20129.017	-16287.239	
820	248.798	72.298	0	0	4090.576	20129.017	-16038.441	
833.28	965.809	73.151	0	0	5056.385	20129.017	-15072.632	
840	468.131	66.181	0	0	5524.516	20129.017	-14604.501	
860	1127.393	46.558	0	0	6651.909	20129.017	-13477.108	
880	896.895	43.131	0	0	7548.804	20129.017	-12580.213	
894.307	586.164	38.811	0	0	8134.968	20129.017	-11994.049	
900	213.486	36.186	0	0	8348.454	20129.017	-11780.563	
911.069	370.621	30.781	0	0	8719.075	20129.017	-11409.942	
920	262.179	27.93	0	0	8981.254	20129.017	-11147.764	
926.307	171.639	26.5	0	0	9152.893	20129.017	-10976.125	
940	331.694	21.946	0	0	9484.587	20129.017	-10644.43	
941.545	33.466	21.378	0	0	9518.053	20129.017	-10610.965	
960	290.073	10.058	0	0	9808.126	20129.017	-10320.892	
964.402	37.981	7.198	0	0	9846.106	20129.017	-10282.911	
980	56.512	0.048	7.086	0.909	9902.618	20136.104	-10233.485	
992.662	7.682	1.165	6.482	0.115	9910.3	20142.586	-10232.285	Inicio: intersección
1050.364	5340.681	24.282	366.354	0	15250.982	20508.94	-5257.959	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT8-R2 - MOVIMIENTO DE TIERRAS (Carretera compuesta 16)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	2.714	0	0	0	0	0	0
20	82.203	5.506	0	0	82.203	0	82.203	
40	97.931	4.287	0	0	180.134	0	180.134	
60	42.869	0	36.195	3.62	223.003	36.195	186.808	
80	0	0	143.198	10.7	223.003	179.394	43.61	
100	0	0	229.961	12.296	223.003	409.354	-186.351	
120	0	0	180.122	5.716	223.003	589.476	-366.473	
140	28.214	2.821	57.164	0	251.218	646.64	-395.422	
160	230.637	20.242	0	0	481.855	646.64	-164.785	
180	363.631	16.121	0	0	845.486	646.64	198.846	
200	249.526	8.832	0	0	1095.012	646.64	448.372	
220	155.579	6.726	0	0	1250.591	646.64	603.951	
240	114.32	4.706	0	0	1364.91	646.64	718.27	
260	82.391	3.533	0	0	1447.301	646.64	800.661	
280	149.008	11.368	0	0	1596.309	646.64	949.669	
300	384.566	27.089	0	0	1980.875	646.64	1334.235	
304.066	120.24	32.055	0	0	2101.114	646.64	1454.474	
320	683.797	53.774	0	0	2784.911	646.64	2138.271	
326.923	375.626	54.739	0	0	3160.537	646.64	2513.897	
329.638	149.171	55.142	0	0	3309.708	646.64	2663.068	
340	596.706	60.033	0	0	3906.414	646.64	3259.774	
342.161	131.08	61.268	0	0	4037.494	646.64	3390.854	
357.399	917.427	59.145	0	0	4954.921	646.64	4308.281	
358.395	58.35	58.09	0	0	5013.27	646.64	4366.63	Inicio: intersección
421.308	1624.232	17.861	10.356	0	6637.502	656.996	5980.506	Final: intersección
440	433.536	28.527	0	0	7071.039	656.996	6414.042	
459.239	768.25	51.337	0	0	7839.289	656.996	7182.292	
460	39.505	52.495	0	0	7878.794	656.996	7221.798	
476.001	1096.64	84.577	0	0	8975.434	656.996	8318.438	
480	357.331	94.132	0	0	9332.765	656.996	8675.769	
491.239	1210.433	121.266	0	0	10543.198	656.996	9886.202	
500	1140.751	139.151	0	0	11683.949	656.996	11026.953	
503.648	518.146	144.909	0	0	12202.095	656.996	11545.099	
506.477	415.845	149.077	0	0	12617.94	656.996	11960.944	
520	2134.252	166.574	0	0	14752.192	656.996	14095.196	
529.334	1556.733	166.977	0	0	16308.925	656.996	15651.929	
540	1742.574	159.785	0	0	18051.499	656.996	17394.503	
553.288	2067.951	151.461	0	0	20119.45	656.996	19462.454	
560	1014.833	150.942	0	0	21134.283	656.996	20477.287	
580	2991.628	148.22	0	0	24125.911	656.996	23468.915	
584.64	683.887	146.538	0	0	24809.797	656.996	24152.801	Inicio: intersección
602.856	2261.602	138.764	0	0	27071.4	656.996	26414.404	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALTR-R2 - MOVIMIENTO DE TIERRAS (Carretera compuesta 17)

P.K. (m)	Desmorte (m³)	Área de desmorte (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmorte acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	12.269	0	0	0	0	0	
20	365.169	24.247	0	0	365.169	0	365.169	
40	550.161	30.769	0	0	915.329	0	915.329	
56.629	468.778	25.614	2.847	0.342	1384.108	2.847	1381.26	
60	84.109	24.281	1.664	0.644	1468.217	4.511	1463.706	
80	463.905	22.109	6.831	0.039	1932.122	11.342	1920.78	
100	587.476	36.638	0.387	0	2519.598	11.729	2507.868	
120	857.056	49.067	0	0	3376.654	11.729	3364.924	
140	1093.801	60.313	0	0	4470.455	11.729	4458.726	
160	1309.355	70.623	0	0	5779.81	11.729	5768.081	
180	1432.024	72.58	0	0	7211.834	11.729	7200.105	
200	1444.312	71.851	0	0	8656.146	11.729	8644.417	
210.576	782.102	76.045	0	0	9438.248	11.729	9426.518	Inicio: intersección
322.773	5340.681	0	366.354	35.525	14778.929	378.084	14400.845	Final: intersección
326.901	0	0	148.313	36.335	14778.929	526.397	14252.532	
340	0	0	490.183	38.507	14778.929	1016.579	13762.35	
360	0	0	640.094	25.502	14778.929	1656.673	13122.256	
361.401	0	0	34.864	24.273	14778.929	1691.537	13087.392	
380	0	0	308.101	8.857	14778.929	1999.639	12779.29	
384.401	0.014	0.006	34.39	6.771	14778.943	2034.029	12744.914	
400	20.05	2.564	67.074	1.829	14798.992	2101.103	12697.889	
404.561	15.821	4.372	6.69	1.105	14814.813	2107.793	12707.02	Inicio: intersección
433.012	139.333	4.974	0.673	0.016	14954.146	2108.466	12845.68	Final: intersección
440	36.513	5.476	0.067	0.003	14990.659	2108.533	12882.127	
442.931	15.179	4.883	0.005	0	15005.839	2108.537	12897.301	
460	41.676	0	45.718	5.356	15047.515	2154.255	12893.26	
465.931	0	0	42.278	8.901	15047.515	2196.534	12850.982	
480	0	0	200.373	19.582	15047.515	2396.907	12650.608	
500	0	0	535.471	33.965	15047.515	2932.378	12115.137	
500.431	0	0	14.671	34.186	15047.515	2947.049	12100.466	
520	0	0	744.649	41.917	15047.515	3691.698	11355.817	
540	0	0	941.134	52.196	15047.515	4632.832	10414.683	
560	0	0	1294.25	77.229	15047.515	5927.082	9120.433	
580	0	0	1682.86	91.057	15047.515	7609.943	7437.573	
600	0	0	1929.64	101.907	15047.515	9539.583	5507.933	
615.306	0	0	1654.381	114.268	15047.515	11193.963	3853.552	
620	0	0	548.638	119.49	15047.515	11742.601	3304.914	
622.481	0	0	300.278	122.585	15047.515	12042.879	3004.636	
632.481	0	0	1367.278	150.871	15047.515	13410.157	1637.358	
640	0	0	1172.116	160.898	15047.515	14582.273	465.242	
650.449	0	0	1755.976	175.213	15047.515	16338.249	-1290.734	
660	0	0	1743.86	189.948	15047.515	18082.11	-3034.594	
673.877	0	0	2761.662	208.062	15047.515	20843.772	-5796.257	
680	0	0	1296.476	215.441	15047.515	22140.248	-7092.733	
687.161	0	0	1571.516	223.471	15047.515	23711.764	-8664.249	Inicio: puente
737.304	0	0	0	275.048	15047.515	23711.764	-8664.249	Final: puente
740	0	0	747.539	279.467	15047.515	24459.303	-9411.788	
760	0	0	5704.72	291.005	15047.515	30164.022	-15116.507	
769.361	0	0	2667.596	278.954	15047.515	32831.618	-17784.103	Inicio: intersección
790.819	0	0	3382.211	214.292	15047.515	36213.829	-21166.314	Final: intersección
800	0	0	1867.487	192.527	15047.515	38081.316	-23033.801	
820	0	0	3430.535	150.526	15047.515	41511.851	-26464.336	
840	0	0	2799.913	129.465	15047.515	44311.764	-29264.249	
860	0	0	2507.278	121.263	15047.515	46819.042	-31771.527	
880	0	0	2538.11	132.548	15047.515	49357.151	-34309.636	
886.876	0	0	938.827	140.544	15047.515	50295.978	-35248.463	
900	0	0	1966.188	159.078	15047.515	52262.167	-37214.652	
920	0	0	3521.111	193.033	15047.515	55783.278	-40735.763	
940	0	0	4506.155	257.583	15047.515	60289.433	-45241.918	
960	0	0	5148.028	257.22	15047.515	65437.461	-50389.946	
980	0	0	4682.544	211.034	15047.515	70120.004	-55072.489	
987.944	0	0	1570.762	184.446	15047.515	71690.766	-56643.251	Inicio: intersección
1027.461	0	0	3893.161	127.513	15047.515	75583.927	-60536.412	Final: intersección
1040	0	0	1622.574	131.298	15047.515	77206.501	-62158.986	
1060	0	0	2739.838	142.686	15047.515	79946.34	-64898.825	
1080	0	0	2969.846	154.299	15047.515	82916.186	-67868.671	
1087.915	0	0	1222.554	154.616	15047.515	84138.74	-69091.224	
1088.416	0	0	77.485	154.569	15047.515	84216.224	-69168.709	Inicio: puente
1130.998	0	0	0	133.29	15047.515	84216.224	-69168.709	Final: puente
1140	0	0	1151.803	122.607	15047.515	85368.027	-70320.512	
1160	0	0	2277.505	105.144	15047.515	87645.533	-72598.018	
1180	0	0	1874.82	82.338	15047.515	89520.352	-74472.837	
1200	0	0	1846.506	102.313	15047.515	91366.859	-76319.344	
1204.235	0	0	435.076	103.177	15047.515	91801.935	-76754.42	Inicio: intersección
1219.158	0	0	809.548	66.415	15047.515	92611.483	-77563.968	Final: intersección
1219.208	0	0	3.282	66.383	15047.515	92614.765	-77567.25	
1220	0	0	52.379	65.861	15047.515	92667.144	-77619.629	
1240	0	0	1191.507	53.289	15047.515	93858.651	-78811.136	
1260	0	0	928.059	39.517	15047.515	94786.71	-79739.195	
1280	0	0	645.958	25.079	15047.515	95432.668	-80385.153	
1300	0	0	462.964	21.217	15047.515	95895.632	-80848.117	
1320	0	0	405.007	19.284	15047.515	96300.639	-81253.124	
1340	0	0	405.37	21.253	15047.515	96706.009	-81658.494	
1347.439	0	0	161.911	22.28	15047.515	96867.92	-81820.405	
1360	0	0	256.218	18.515	15047.515	97124.138	-82076.623	
1380	0	0	213.696	2.855	15047.515	97337.834	-82290.319	
1400	14.391	1.439	28.845	0.03	15061.907	97366.68	-82304.773	
1413.007	25.691	2.511	0.199	0.001	15087.598	97366.879	-82279.281	
1420	24.224	4.417	0.004	0	15111.821	97366.883	-82255.061	
1440	176.927	13.276	0	0	15288.748	97366.883	-82078.134	
1442.7	38.923	15.556	0	0	15327.672	97366.883	-82039.211	Inicio: intersección
1457.181	1031.02	30.195	0	0	16358.692	97366.883	-81008.191	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT8-R2 - MOVIMIENTO DE TIERRAS (Carretera compuesta 18)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	95.062	0	0	0	0	0	0
14.819	1520.135	110.092	0	0	1520.135	0	1520.135	
20	574.18	111.574	0	0	2094.315	0	2094.315	
36.007	1841.966	118.571	0	0	3936.28	0	3936.28	Inicio: intersección
47.483	1075.216	123.301	0	0	5011.496	0	5011.496	Final: intersección
54.03	813.713	125.289	0	0	5825.209	0	5825.209	
60	747.765	125.206	0	0	6572.974	0	6572.974	
68.171	1018.114	123.996	0	0	7591.088	0	7591.088	
80	1438.277	119.182	0	0	9029.365	0	9029.365	
85.157	591.425	110.174	0	0	9620.789	0	9620.789	Inicio: intersección
114.254	1928.054	73.492	0.051	0	11548.844	0.051	11548.793	Final: intersección
118.423	311.181	75.779	0	0	11860.025	0.051	11859.975	
120	119.883	76.283	0	0	11979.909	0.051	11979.858	
137.847	1300.59	69.468	0	0	13280.499	0.051	13280.448	Inicio: intersección
158.869	1386.091	73.074	0	0	14666.589	0.051	14666.539	Final: intersección
160	82.881	73.455	0	0	14749.471	0.051	14749.42	
164.04	298.646	74.38	0	0	15048.117	0.051	15048.066	Inicio: intersección
188.084	1210.497	67.48	0	0	16258.614	0.051	16258.563	Final: intersección
200	778.475	63.18	0	0	17037.089	0.051	17037.038	
206.326	397.087	62.358	0	0	17434.175	0.051	17434.125	
220	854.824	62.673	0	0	18288.999	0.051	18288.949	
220.973	61.084	62.88	0	0	18350.083	0.051	18350.033	
224.603	229.978	63.814	0	0	18580.061	0.051	18580.011	
240	1020.261	68.717	0	0	19600.322	0.051	19600.272	
242.592	178.85	69.284	0	0	19779.172	0.051	19779.122	Inicio: intersección
256.725	1073.503	90.556	8.133	0	20852.675	8.184	20844.492	Final: intersección
260	303.917	95.016	0	0	21156.592	8.184	21148.409	
261.068	102.155	96.279	0	0	21258.747	8.184	21250.564	Inicio: intersección
281.579	2261.602	98.97	0	0	23520.35	8.184	23512.166	Final: intersección
300	1738.662	89.801	0	0	25259.011	8.184	25250.828	
302.7	237.604	86.189	0	0	25496.615	8.184	25488.432	
316.5	1249.572	94.909	0	0	26746.187	8.184	26738.004	

MODELO SIMPLIFICADO ALTERNATIVA ALT8-R2 - MOVIMIENTO DE TIERRAS (Carretera compuesta 19)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	45.982	0	0	0	0	0	0 Inicio: intersección
42.8	16307.595	30.71	1563.227	0	16307.595	1563.227	14744.368	Final: intersección
60	592.311	38.162	0	0	16899.907	1563.227	15336.679	
80	937.853	55.623	0	0	17837.759	1563.227	16274.532	
100	1246.499	69.026	0	0	19084.258	1563.227	17521.031	
120	1495.447	80.518	0	0	20579.705	1563.227	19016.478	
130.303	831.78	80.946	0	0	21411.485	1563.227	19848.258	Inicio: intersección
161.759	1928.054	65.123	0.051	0	23339.539	1563.278	21776.262	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT8-R2 - MOVIMIENTO DE TIERRAS (Carretera compuesta 20)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	82.93	0	0	0	0	0	0 Inicio: intersección
26.431	1210.497	55.952	0	0	1210.497	0	1210.497	Final: intersección
40	642.519	38.751	0	0	1853.015	0	1853.015	
60	655.035	26.753	0	0	2508.051	0	2508.051	
80	568.929	30.14	0	0	3076.979	0	3076.979	
89.376	277.952	29.152	0	0	3354.931	0	3354.931	Inicio: intersección
131.866	1031.02	27.616	0	0	4385.951	0	4385.951	Final: intersección
140	236.199	30.46	0	0	4622.15	0	4622.15	
148.874	298.833	36.888	0	0	4920.983	0	4920.983	Inicio: intersección
202.698	2690.958	62.225	0	0	7611.94	0	7611.94	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT8-R2 - MOVIMIENTO DE TIERRAS (Carretera compuesta 21)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	78.093	0	0	0	0	0	0 Inicio: intersección
19.019	1386.091	87.174	0	0	1386.091	0	1386.091	Final: intersección
20	85.487	87.026	0	0	1471.577	0	1471.577	
40	1693.202	82.294	0	0	3164.779	0	3164.779	
57.023	1346.471	75.905	0	0	4511.249	0	4511.249	
60	232.379	80.185	0	0	4743.628	0	4743.628	
78.039	1731.099	111.746	0	0	6474.727	0	6474.727	
80	222.553	115.197	0	0	6697.28	0	6697.28	
87.391	893.946	126.71	0	0	7591.225	0	7591.225	
93.039	728.38	131.221	0	0	8319.605	0	8319.605	
100	900.542	127.507	0	0	9220.147	0	9220.147	
103.039	382.941	124.536	0	0	9603.089	0	9603.089	
113.039	1201.389	115.742	0	0	10804.478	0	10804.478	
119.839	789.73	116.514	0	0	11594.208	0	11594.208	
120	18.725	116.38	0	0	11612.933	0	11612.933	
140	2051.716	88.792	0	0	13664.648	0	13664.648	
143.045	265.057	85.304	0	0	13929.705	0	13929.705	
160	1566.861	99.521	0	0	15496.566	0	15496.566	
180	2364.889	136.968	0	0	17861.455	0	17861.455	
200	2925.295	155.562	0	0	20786.75	0	20786.75	
220	3157.473	160.186	0	0	23944.224	0	23944.224	
240	2869.147	126.729	0	0	26813.371	0	26813.371	
260	2187.063	91.977	0	0	29000.433	0	29000.433	
262.382	214.617	88.25	0	0	29215.051	0	29215.051	
272.382	783.716	68.494	0	0	29998.767	0	29998.767	
280	486.678	59.271	0	0	30485.445	0	30485.445	
282.382	138.176	56.764	0	0	30623.621	0	30623.621	
297.382	742.759	42.271	0	0	31366.38	0	31366.38	
300	107.456	39.808	0	0	31473.835	0	31473.835	
320	637.179	23.91	0	0	32111.014	0	32111.014	
333.468	273.987	16.776	0	0	32385.001	0	32385.001	Inicio: intersección
361.593	139.333	1.578	0.673	0	32524.334	0.673	32523.661	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT8-R2 - MOVIMIENTO DE TIERRAS (Carretera compuesta 22)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	52.441	0	0	0	0	0	0 Inicio: intersección
48.793	2690.958	9.407	0	0	2690.958	0	2690.958	Final: intersección
60	61.833	1.628	0	0	2752.791	0	2752.79	
63.884	3.192	0.016	0.991	0.51	2755.982	0.991	2754.991	Inicio: intersección
85.901	4.586	0	240.077	17.601	2760.568	241.069	2519.499	Final: intersección
100	0	0	351.28	32.229	2760.568	592.348	2168.22	
120	0	0	785.073	46.278	2760.568	1377.421	1383.147	
140	0	0	1359.922	89.714	2760.568	2737.343	23.225	
157.427	0	0	1842.533	121.744	2760.568	4579.876	-1819.308	Inicio: puente
270.185	0	0	0	113.602	2760.568	4579.876	-1819.308	Final: puente
280	0	0	1050.02	100.35	2760.568	5629.896	-2869.328	
300	0	0	1918.617	91.511	2760.568	7548.513	-4787.945	
320	0	0	1689.64	77.453	2760.568	9238.153	-6477.585	
340	0	0	1466.223	69.17	2760.568	10704.376	-7943.808	
340.678	0	0	46.813	68.825	2760.568	10751.189	-7990.622	Inicio: intersección
354.432	0	0	809.548	60.605	2760.568	11560.738	-8800.17	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT8-R2 - MOVIMIENTO DE TIERRAS (Carretera compuesta 24)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	124.763	0	0	0	0	0	0 Inicio: intersección
11.143	1075.216	107.011	0	0	1075.216	0	1075.216	Final: intersección
20	885.605	92.972	0	0	1960.821	0	1960.821	
32.679	1059.101	74.087	0	0	3019.922	0	3019.922	
40	498.657	62.146	0	0	3518.579	0	3518.579	
60	980.905	35.945	0	0	4499.484	0	4499.484	
78.827	523.378	19.655	0	0	5022.862	0	5022.862	Inicio: intersección
123.49	16307.595	10.683	1563.227	0	21330.458	1563.227	19767.23	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT8-R2 - MOVIMIENTO DE TIERRAS (Carretera compuesta 25)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	0.091	0	0.055	0	0	0	0 Inicio: intersección
16.41	4.586	0	240.077	5.646	4.586	240.077	-235.492	Final: intersección
20	0	0	20.722	5.896	4.586	260.799	-256.213	
40	42.033	4.203	58.962	0	46.619	319.761	-273.142	
60	317.773	27.574	0	0	364.392	319.761	44.631	
80	555.626	27.989	0	0	920.018	319.761	600.257	
96.055	599.89	46.743	0	0	1519.908	319.761	1200.147	Inicio: intersección
112.741	1073.503	69.843	8.133	0	2593.411	327.894	2265.517	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT8-R2 - MOVIMIENTO DE TIERRAS (Carretera compuesta 26)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	0	0	107.999	0	0	0	0 Inicio: intersección
40.393	0	0	3893.161	64.333	0	3893.161	-3893.161	Final: intersección
60	0	0	1127.892	50.718	0	5021.053	-5021.053	
80	0	0	984.419	47.724	0	6005.472	-6005.472	
100	0	0	820.423	34.318	0	6825.895	-6825.895	
120	0	0	490.659	14.747	0	7316.554	-7316.554	
140	2.225	0.223	152.592	0.512	2.225	7469.145	-7466.92	
160	130.229	12.8	5.117	0	132.454	7474.262	-7341.808	
180	315.811	18.781	0	0	448.265	7474.262	-7025.997	
200	332.52	14.471	0	0	780.786	7474.262	-6693.477	
220	293.208	14.849	0	0	1073.993	7474.262	-6400.269	
240	288.328	13.983	0	0	1362.321	7474.262	-6111.941	
260	389.316	24.948	0	0	1751.637	7474.262	-5722.626	
268.688	274.502	38.242	0	0	2026.138	7474.262	-5448.124	Inicio: intersección
299.994	6428.618	87.204	802.857	0	8454.756	8277.119	177.637	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT8-R2 - MOVIMIENTO DE TIERRAS (Carretera compuesta 27)

P.K. (m)	Desmante (m³)	Área de desmante (m²)	Terraplén (m³)	Área de terraplén (m²)	Desmante acumulado (m³)	Terraplén acumulado (m³)	Neto acumulado (m³)	Nota
0	0	0	0	139.035	0	0	0	0 Inicio: intersección
25.939	0	0	3382.211	111.867	0	3382.211	-3382.211	Final: intersección
40	0	0	1347.036	79.736	0	4729.247	-4729.247	
60	0	0	1209.518	41.215	0	5938.765	-5938.765	
80	0	0	581.208	16.905	0	6519.972	-6519.972	
100	0	0	355.186	18.613	0	6875.158	-6875.158	
120	0	0	335.481	14.935	0	7210.639	-7210.639	
136.534	0	0	172.595	5.943	0	7383.234	-7383.234	Inicio: intersección
172.03	1624.232	11.74	10.356	0	1624.232	7393.59	-5769.358	Final: intersección

MODELO SIMPLIFICADO ALTERNATIVA ALT5-C3 - MEDICIÓN DE MATERIALES

Tipo de recurso	Grupo	Nombre	Longitud (m)	Área (m²)	Volumen (m³)	Hormigón prefabricado (m³)	Hormigón moldeado in situ (m³)	Acero (estructural) (MT)	Acero (refuerzo) (MT)
Puente	Puente 1	Total				191.048	802.668	79497.28	0
Puente	Puente 1	Superestructura				191.048	295.864	38952.96	0
Puente	Puente 1	Subestructura				0	506.804	40544.32	0
Puente	Puente 4	Total				96.977	267.052	29122.32	0
Puente	Puente 4	Superestructura				96.977	113.612	16847.12	0
Puente	Puente 4	Subestructura				0	153.44	12275.2	0
Puente	Puente 3	Total				82.28	391.385	37893.2	0
Puente	Puente 3	Superestructura				82.28	147.117	18351.76	0
Puente	Puente 3	Subestructura				0	244.268	19541.44	0
Puente	Puente 2	Total				184.786	634.539	65546	0
Puente	Puente 2	Superestructura				184.786	245.172	34396.64	0
Puente	Puente 2	Subestructura				0	389.367	31149.36	0
Túnel	Túnel 8	Total				0	1829.17	146333.6	0
Túnel	Túnel 8	Superestructura				0	0	0	0
Túnel	Túnel 8	Subestructura				0	1829.17	146333.6	0
Túnel	Túnel 1	Total				0	3992.637	319410.96	0
Túnel	Túnel 1	Superestructura				0	0	0	0
Túnel	Túnel 1	Subestructura				0	3992.637	319410.96	0
Túnel	Túnel 2	Total				0	1040.404	83232.32	0
Túnel	Túnel 2	Superestructura				0	0	0	0
Túnel	Túnel 2	Subestructura				0	1040.404	83232.32	0
Túnel	Túnel 9	Total				0	1053.015	84241.2	0
Túnel	Túnel 9	Superestructura				0	0	0	0
Túnel	Túnel 9	Subestructura				0	1053.015	84241.2	0
Componente de carretera	Carriil	Surface Dark Grey Asphalt 1w 1h	12544.403	45159.852	9031.97				
Componente de carretera	Arcén	Surface Light Grey Asphalt 2.08w 2.82h	13615.32	20636.206	4127.241				
Componente de carretera	Barrera New Jersey	Surface Light Grey Asphalt 2.08w 2.82h	1204.049	733.988	452.826				

MODELO SIMPLIFICADO ALTERNATIVA ALT7-R1 - MEDICIÓN DE MATERIALES

Tipo de recurso	Grupo	Nombre	Longitud (m)	Área (m²)	Volumen (m³)	Hormigón prefabricado (m³)	Hormigón moldeado in situ (m³)	Acero (estructural) (MT)	Acero (refuerzo) (MT)
Puente	Puente 1	Total				234.934	758.899	79506.64	0
Puente	Puente 1	Superestructura				234.934	246.745	38534.32	0
Puente	Puente 1	Subestructura				0	512.154	40972.32	0
Túnel	Túnel 1	Total				0	3084.154	246732.32	0
Túnel	Túnel 1	Superestructura				0	0	0	0
Túnel	Túnel 1	Subestructura				0	3084.154	246732.32	0
Túnel	Túnel 2	Total				0	571.034	45682.72	0
Túnel	Túnel 2	Superestructura				0	0	0	0
Túnel	Túnel 2	Subestructura				0	571.034	45682.72	0
Túnel	Túnel 3	Total				0	638.104	51048.32	0
Túnel	Túnel 3	Superestructura				0	0	0	0
Túnel	Túnel 3	Subestructura				0	638.104	51048.32	0
Túnel	Túnel 4	Total				0	1271.444	101715.52	0
Túnel	Túnel 4	Superestructura				0	0	0	0
Túnel	Túnel 4	Subestructura				0	1271.444	101715.52	0
Componente de carretera	Arcén	Surface Light Grey Asphalt 2.08w 2.82h	5606.925	8410.388	1682.078				
Componente de carretera	Carriil	Surface Dark Grey Asphalt 1w 1h	13337.632	47964.358	9592.872				
Componente de carretera	Bordillo y caz	Surface Light Grey Concrete 3w 3h	6291.292	4154.068	1227.886				
Componente de carretera	Barrera New Jersey	Surface Light Grey Asphalt 2.08w 2.82h	1973.512	1203.053	742.21				

MODELO SIMPLIFICADO ALTERNATIVA ALT8-R2 - MEDICIÓN DE MATERIALES

Tipo de recurso	Grupo	Nombre	Longitud (m)	Área (m²)	Volumen (m³)	Hormigón prefabricado (m³)	Hormigón moldeado in situ (m³)	Acero (estructural) (MT)	Acero (refuerzo) (MT)
Puente	Puente 3	Total				144.165	505.527	51975.36	0
Puente	Puente 3	Superestructura				144.165	176.83	25679.6	0
Puente	Puente 3	Subestructura				0	328.698	26295.84	0
Puente	Puente 4	Total				394.496	865.265	100780.88	0
Puente	Puente 4	Superestructura				394.496	378.784	61862.4	0
Puente	Puente 4	Subestructura				0	486.481	38918.48	0
Puente	Puente 2	Total				154.512	757.28	72943.36	0
Puente	Puente 2	Superestructura				154.512	224.002	30781.12	0
Puente	Puente 2	Subestructura				0	533.278	42662.24	0
Túnel	Túnel 1	Total				0	3603.367	288269.36	0
Túnel	Túnel 1	Superestructura				0	0	0	0
Túnel	Túnel 1	Subestructura				0	3603.367	288269.36	0
Túnel	Túnel 5	Total				0	2094.051	167524.08	0
Túnel	Túnel 5	Superestructura				0	0	0	0
Túnel	Túnel 5	Subestructura				0	2094.051	167524.08	0
Túnel	Túnel 2	Total				0	442.12	35369.6	0
Túnel	Túnel 2	Superestructura				0	0	0	0
Túnel	Túnel 2	Subestructura				0	442.12	35369.6	0
Túnel	Túnel 3	Total				0	516.29	41303.2	0
Túnel	Túnel 3	Superestructura				0	0	0	0
Túnel	Túnel 3	Subestructura				0	516.29	41303.2	0
Túnel	Túnel 4	Total				0	942.144	75371.52	0
Túnel	Túnel 4	Superestructura				0	0	0	0
Túnel	Túnel 4	Subestructura				0	942.144	75371.52	0
Componente de carretera	Carriil	Surface Dark Grey Asphalt 1w 1h	14037.952	50536.628	10107.326				
Componente de carretera	Arcén	Surface Light Grey Asphalt 2.08w 2.82h	15404.805	23107.207	4621.441				
Componente de carretera	Barrera New Jersey	Surface Light Grey Asphalt 2.08w 2.82h	2297.994	1400.857	864.243				

MODELO SIMPLIFICADO ALTERNATIVA ALT5-C3 - RESUMEN DE MEDICIONES

Carretera	Desmonte		Terraplén		Volumen neto (m3)
	Volumen (m3)	Metros lineales	Volumen (m3)	Metros lineales	
14	2029.5	78.6	63688.6	830.2	-61659.1
16	2618.2	54.3	41441.7	859.7	-38823.5
17	3795.5	294.1	60076.1	975.9	-56280.6
28	3532.8	185.8	20902.4	421.8	-17369.6
30	54470.3	804.8	817.0	42.1	53653.3
31	5740.5	85.1	289.5	29.7	5451.0
32	951.4	6.4	54685.9	510.1	-53734.5
33	4214.6	113.2	1885.3	61.6	2329.3
34	51936.8	641.7	23830.3	687.5	28106.6
35	10945.1	168.6	1835.7	8.3	9109.4
36	3020.1	105.7	8135.5	295.0	-5115.5
TOTAL	143254.7	2538.3	277587.9	4722.0	-134333.2

Hormigón prefabricado (m3)	1110.2
Hormigón in situ (m3)	20021.7
Acero estructural	1690553.8
Mezcla bituminosa	13612.0
Metros estructura	355.0

MODELO SIMPLIFICADO ALTERNATIVA ALT7-R1 - RESUMEN DE MEDICIONES

Carretera	Desmonte		Terraplén		Volumen neto (m3)
	Volumen (m3)	Metros lineales	Volumen (m3)	Metros lineales	
6	79747.5	918.7	37406.6	778.9	42340.9
7	4841.6	268.2	46315.0	540.9	-41473.4
9	7103.1	110.4	4133.4	70.4	2969.7
10	48908.1	534.7	227.4	4.0	48680.7
11	7433.5	134.3	226.1	5.4	7207.4
12	12830.5	154.1	0.0	0.0	12830.5
14	4394.7	285.2	37212.6	760.9	-32818.0
15	29368.0	664.6	1536.9	103.5	27831.1
16	15914.8	466.2	569.2	81.4	15345.6
17	6939.0	175.3	1066.5	33.7	5872.5
TOTAL	217480.759	3711.727442	128693.656	2379.308558	88787.103

Hormigón prefabricado (m3)	470
Hormigón in situ (m3)	12647
Acero estructural	1049371
Mezcla bituminosa	13245
Metros estructura	79.7

MODELO SIMPLIFICADO ALTERNATIVA ALT8-R2 - RESUMEN DE MEDICIONES

Carretera	Desmonte		Terraplén		Volumen neto (m3)
	Volumen (m3)	Metros lineales	Volumen (m3)	Metros lineales	
6	126313.0	1306.1	11804.3	391.5	114508.7
14	15251.0	410.3	20508.9	640.1	-5258.0
16	27071.4	519.9	657.0	82.9	26414.4
17	16358.7	432.0	97366.9	932.5	-81008.2
18	26746.2	316.4	8.2	0.1	26738.0
19	23339.5	158.0	1563.3	3.7	21776.3
20	7611.9	202.7	0.0	0.0	7611.9
21	32524.3	361.5	0.7	0.1	32523.7
22	2760.6	63.4	11560.7	178.3	-8800.2
24	21330.5	119.6	1563.2	3.9	19767.2
25	2593.4	81.2	327.9	31.5	2265.5
26	8454.8	156.0	8277.1	143.9	177.6
27	1624.2	35.3	7393.6	136.8	-5769.4
TOTAL	311979.5	4162.4	161031.8	2545.3	150947.7

Hormigón prefabricado (m3)	1386
Hormigón in situ (m3)	19452
Acero estructural	1667075
Mezcla bituminosa	15593
Metros estructura	205.5

ESTUDIO DE SOLUCIONES - RESUMEN DE MEDICIONES

	Desmonte		Terraplén		Volumen neto (m3)	Hormigón prefabricado o in situ (m3)	Acero estructural (kg)	Mezcla bituminosa (m3)
	Volumen (m3)	Metros lineales	Volumen (m3)	Metros lineales				
ALT5-C3	143255	2538	277588	4722	-134333	21132	1690554	13612
ALT7-R1	217481	3712	128694	2379	88787	13117	1049371	13245
ALT8-R2	311980	4162	161032	2545	150948	20838	1667075	15593